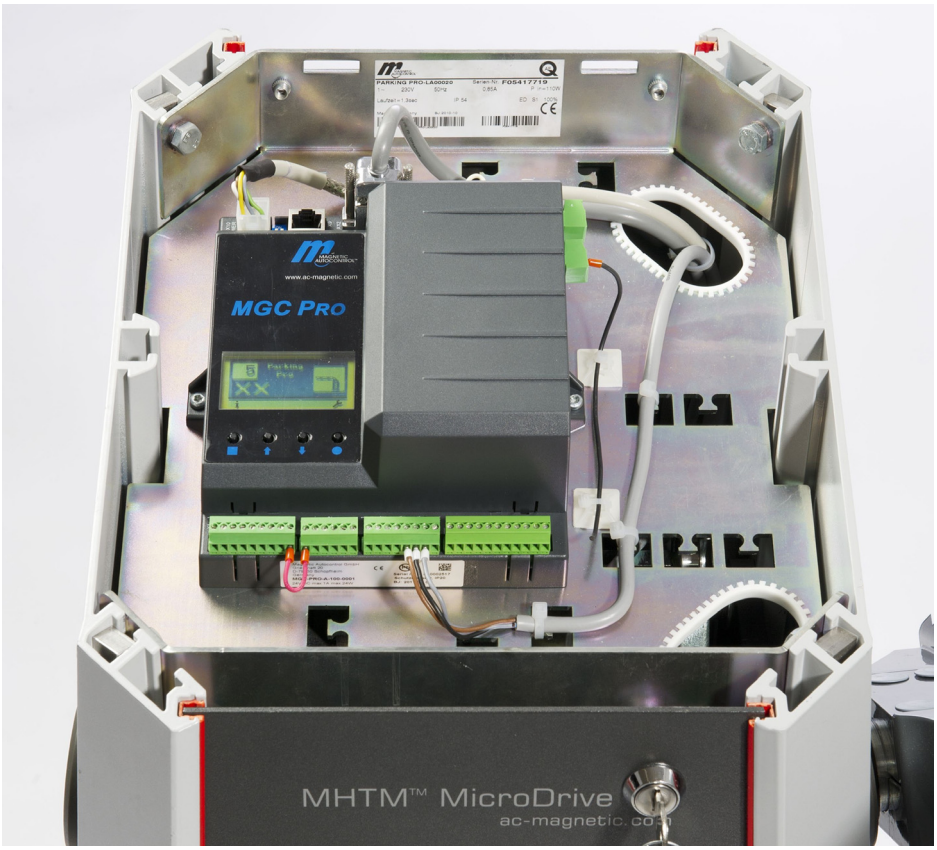
Description

Control Unit MGC and MGC-Pro for MHTM™ MicroDrive Barriers



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1 General

1.1 Information on the instructions

These instructions describe the control unit MGC and the associated plug-in modules from the programme versions named below onwards. Software number (software #) and software version (SW version) are displayed in the menu "Module info".

For information about assembly, electrical connection, troubleshooting and maintenance, see the corresponding operating instructions.

Programme versions Control unit MGC and plug-in modules

Designation	Software #	SW version
Master Controller Standard	4915,1000	0.12
Motor Gateway Controller	4915,3000	0.12
Detector module 2-channel	4915,3001	0.12
Radio module 433 MHz	4915,3003	0.12
Ethernet Module	4915,3004	0.12

Table 1: Programme versions

1.2 Pictogram explanation

Warning notes

Warning notes are characterised by pictograms in these operating instructions. The warning notes are followed by signal words expressing the scale of the hazard.

It is absolutely essential to observe the notes and to proceed with caution in order to prevent accidents as well as bodily injuries and property damage.

⚠ WARNING!

WARNING!

…points to a possibly dangerous situation that may lead to death or severe injuries if it is not avoided.

Hints and recommendations

NOTE!

…highlights useful hints and recommendations as well as information for an efficient and trouble-free operation.

1.3 Requirements to the specialists

⚠ WARNING!	
	**Risk of injury in case of inadequate qualification!** Improper handling can lead to considerable bodily injuries and property damage. Therefore: – Have any activities only carried out by the individuals designated for that purpose.

MHTM™ MicroDrive service experts
are able, due to their technical training, knowledge and experiences as well as knowledge of the relevant standards and regulations, to execute tasks on electrical systems and to independently recognise possible hazards.
Additionally, these electricians are trained and authorised by MAGNETIC to perform special repair and service work at MHTM™ MicroDrive barriers.

In Germany, the electrical specialist must comply with the provisions of accident prevention regulation BGV A3 (e.g. master electrical fitter). Appropriate regulations apply in other countries. The regulations valid there must be observed.

2 Digital inputs, digital outputs and output relays

2.1 Digital inputs

Improper parameterisation and wiring

⚠ WARNING!

Risk of injury by improper parameterisation and wiring of the control unit!

Inappropriate parameterisation and wiring can cause severe injuries!

Therefore:

– The parameterisation and wiring of the control unit must only be carried out by qualified personnel or professional electricians.
– The electrical connection of the signal generators to the IN1 to IN8 inputs must fit the parameterisation.

Freely parameterisable and firmly assigned input functions

NOTE!

For barriers with a MGC-Pro control unit, the functions of the digital inputs can be parameterised freely. The MGC-Pro control unit is installed in the following types:

– *Access Pro, Access Pro L, Access Pro H, Access Select and Access Select L*
– *Access XL and Access XXL*
– *Parking Pro and Parking Select*
– *Toll Pro*
– *Toll HighSpeed with MGC-Pro*

In the other barriers, the control unit MGC is installed. The input functions are firmly assigned here.

→ For input parameterisation, refer to page 18, chapter 3.

Digital inputs, digital outputs and output relays

Factory setting

Clamp	Description	Function
IN1	Input 1	Open low priority
IN2	Input 2	Open low priority
IN3	Input 3	Opening with vend count
IN4	Input 4	Open high priority
IN5	Input 5	External opening loop exit
IN6	Input 6	Close
IN7	Input 7	Close
IN8	Input 8	Boom contact

Table 2: Factory settings "Digital inputs"

The functions have different priorities towards each other. The function "Open high priority" has the highest priority (priority 1). I.e. all other functions, such as "Open low priority", "Close", etc. are ignored if the function "Open high priority" is active.

Function	Description
Open high priority	**Control Unit:** MGC-Pro and MGC Connect fire fighter switch, emergency opening contacts, etc. to this input. This input has the highest priority. The barrier opens when +24 V DC are applied to this input. While the signal is present, the barrier cannot be closed. This input must not be used for opening loops. This input function is superordinated to all other input functions.
Open low priority ■ Programme modes 2, 4 to 8: Open low priority ■ Programme mode 3: Close/Open	**Control Unit:** MGC-Pro and MGC Depending on programme mode, a permanent signal or impulse is required. ■ Programme modes 2, 4 to 8: The barrier opens when +24 V DC are applied to this input. ■ Programme mode 3: The barrier changes its state with every impulse, i.e. the barrier closes or opens.
Opening exit [1)]	**Control Unit:** MGC-Pro This function is used for selective counting, e.g. for permanent renters of a parking space.
Opening with vend count [1)]	**Control Unit:** MGC-Pro and MGC An internal vend count counts the impulses present at this input. The impulse must be present for approx. 100 to 300 ms. The reset behaviour of the vend count can be set by the "Reset behaviour" parameter. → Refer to page 45, chapter 3.15.4.
Close	**Control Unit:** MGC-Pro and MGC Depending on programme mode, a permanent signal or impulse is required. The barrier closes when +24 V DC are applied to this input.

Function	Description
Close low priority	**Control Unit:** MGC-Pro The function "Close low priority" is subordinated to all opening functions. The barrier closes when +24 V DC are applied to this input.
Inhibit opening	**Control Unit:** MGC-Pro The function "Close low priority" is subordinated to all opening functions. The barrier closes when +24 V DC are applied to this input.
Inhibit opening loop	**Control Unit:** MGC-Pro If the input function is active, the barrier remains closed when the opening loop is driven on.
Inhibit signal light	**Control Unit:** MGC-Pro Signal lights are no longer controlled when +24 V DC are applied to this input.
External opening loop entry [1)]	**Control Unit:** MGC-Pro The barrier opens when +24 V DC are applied to this input. Connect external opening loops to this input.
External opening loop exit [1)]	**Control Unit:** MGC-Pro and MGC The barrier opens when +24 V DC are applied to this input. Connect external opening loops to this input.
External impact detection	**Control Unit:** MGC-Pro and MGC You can install external impact detection to the barrier boom. While no vehicle touches the barrier boom from below, the input "External impact detection" has +24 V DC applied. When the barrier boom impacts a vehicle, e.g. due to impermissible driving through of a vehicle, the +24 V DC are removed from the input "External impact detection". The barrier's behaviour in case of impact detection can be set in the "Impact settings" menu. → Refer to page 48, chapter 3.15.5.
Boom contact input	**Control Unit:** MGC-Pro The barrier is equipped with a boom release input in the flange. While the barrier boom is in its correct position, +24 V DC are applied to the "Boom contact input" input. When the barrier boom is moved from its position e.g. by a collision with a vehicle, the +24 V DC are removed from the "Boom contact input" input. The barrier moves into the "open" position. The boom contact must be activated in the menu "Boom contact settings". In the menu "Boom contact settings", the option "Enabled" must be chosen for the parameter "Inactive/active". → Refer to page 60, chapter 3.18.2.
Additional safety device	**Control Unit:** MGC-Pro For barriers of the Parking and Toll series, these functions can be assigned to input IN6. +24 V DC must be applied at this input for operation. You can implement this as follows: ■ Via a safety device with potential-free contact ■ Via a wire bridge, connected to +24 V DC The barrier cannot be closed if the input signal +24 V is interrupted. If the barrier is in the process of closing and the +24 V input signal is interrupted and the cut-off angle for the parameter "Safety loop close" is not undercut yet, the barrier opens again. This input must only be used in addition to the internal detector module and/or to the safety light barriers connected to clamp X11.

Digital inputs, digital outputs and output relays

Function	Description
Acknowledgement	**Control Unit:** MGC-Pro This input is required for parallel operation. → For more information on parallel operation, see separate instructions.
Blink signal light	**Control Unit:** MGC-Pro While +24 V DC are pending at the input, the lamps flash at 1 Hz. This input function overwrites the following settings: ■ Parameter "Signal light A", all options ■ Parameter "Signal light B", all options except for "Illumination strip green". You may use this function for special signalling like "Parking place assigned".
Parking counter reset	**Control Unit:** MGC-Pro Through this input, you can reset the lot counter to "0" by applying a +24 V DC-signal. → For other information, see separate instructions "ECN-module".

1) This function is only sensible for automatic programme modes 5 to 8.

Table 3: Function "Digital inputs"

2.2 Digital outputs and output relays

Freely parameterisable and firmly assigned output functions

NOTE!

For barriers with a MGC-Pro control unit, the functions of the outputs can be parameterised freely. The MGC-Pro control unit is installed in the following types:

- *Access Pro, Access Pro L, Access Pro H, Access Select and Access Select L*
- *Access XL and Access XXL*
- *Parking Pro and Parking Select*
- *Toll Pro*
- *Toll HighSpeed with MGC-Pro*

In the other barriers, the control unit MGC is installed. The output functions are firmly assigned here.

→ For output parameterisation, refer to page 18, chapter 3.

Factory setting

Clamp	Description	Function
DO1	Digital output 1	Boom locking
DO2	Digital output 2	Pulse after passage
DO3	Digital output 3	Signal light A
DO4	Digital output 4	Signal light B
NO1	Relay 1	Open
NO2	Relay 2	Closed
NO3	Relay 3	Error
NO4/NC4	Relay 4	Loop active A
NO5/NC5	Relay 5	Loop active B
NO6/NC6	Relay 6	Signal light C

Table 4: Factory settings "Digital outputs" and "Relay outputs"

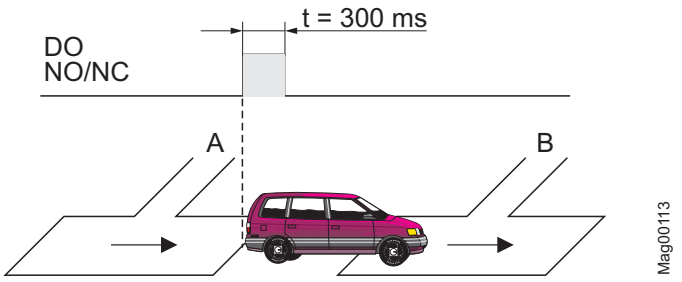
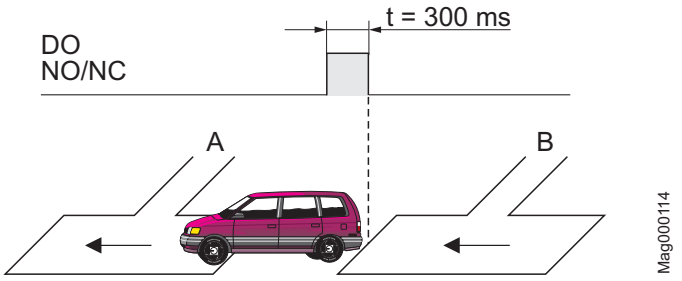
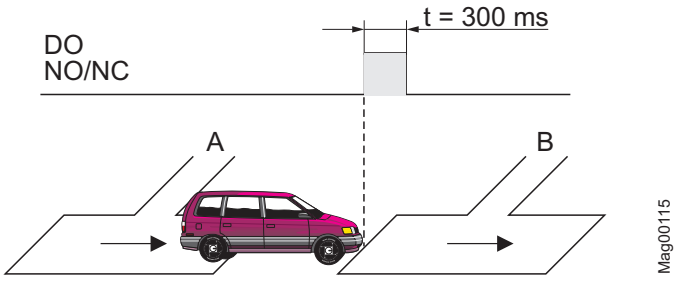
Function	Description
Error	**Control Unit:** MGC-Pro and MGC When the control unit recognises any "safety-relevant error" or "error", the output with this function is reactivated (Fail safe). → See operating instructions of the barrier, chapter "Warning and interference messages on the display".
Warning	**Control Unit:** MGC-Pro When the control unit recognises any "warning", the output with this function is reactivated (Fail safe).
Closed	**Control Unit:** MGC-Pro and MGC When the barrier is closed, the output with this function is active.

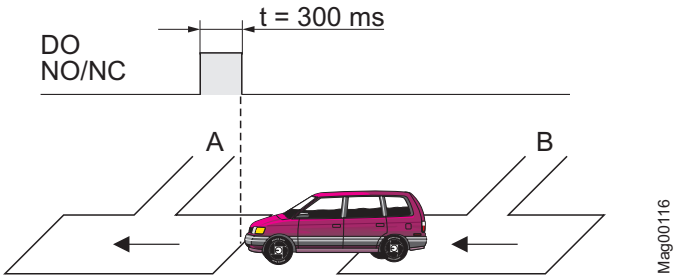
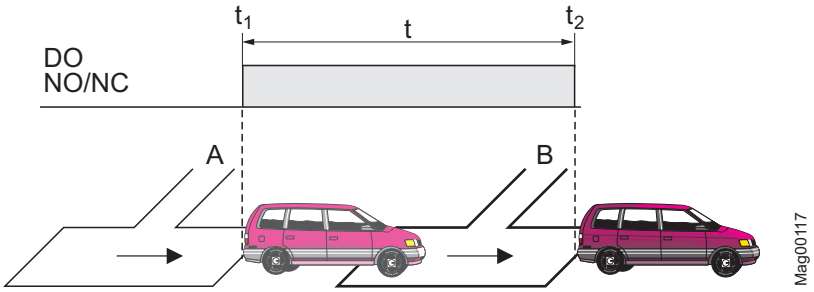
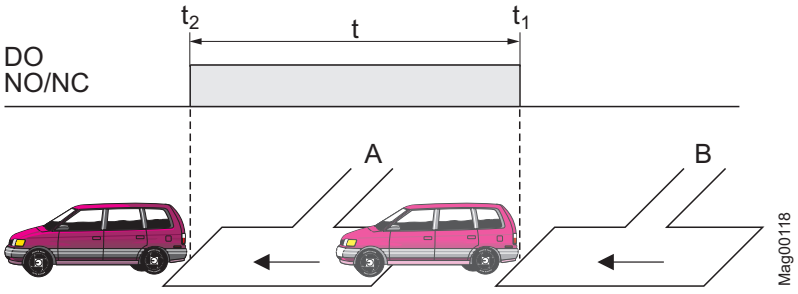
Digital inputs, digital outputs and output relays

Function	Description
Open	**Control Unit:** MGC-Pro and MGC When the barrier is open, the output with this function is active.
Closing	**Control Unit:** MGC-Pro While the barrier closes, the output with this function is active.
Opening	**Control Unit:** MGC-Pro While the barrier opens, the output with this function is active.
Boom angle feedback	**Control Unit:** MGC-Pro This function is used to set the upper and lower angles. When the barrier boom is within this angle range, the output with this function is active. When the barrier boom is outside of the angle range set, the output is inactive. The upper and lower angle can be set for values between 0° and 90°.
Pulse after passage [1)]	**Control Unit:** MGC-Pro and MGC When a passage was detected, this output emits a counter pulse of 300 ms with this function. Passage is possible in either direction.
Sliding door pulse	**Control Unit:** MGC-Pro This output is used to control a sliding gate. When the barrier is open, the output with this function emits a counter pulse of 300 ms with this function.
Boom contact feedback	**Control Unit:** MGC-Pro The barrier can optionally be equipped with a boom contact in the flange. When the boom contact triggers, the output with this function is deactivated (fail safe). The output is activated again once the boom contact is re-established and the boom is opened again entirely.
Signal light A	**Control Unit:** MGC-Pro and MGC This output is used to control a signal light. The function of this output can be parameterised via the parameter "Signal mode A", page 57, chapter 3.18.1.
Signal light B	**Control Unit:** MGC-Pro and MGC This output is used to control a signal light. The function of this output can be parameterised via the parameter "Signal mode B", page 57, chapter 3.18.1.
Signal lamp C	**Control Unit:** MGC-Pro and MGC This output is used to control a signal light. The function of this output can be parameterised via the parameter "Signal mode C", page 57, chapter 3.18.1.
Boom locking	**Control Unit:** MGC-Pro and MGC The barrier can optionally be equipped with a boom lock. This output serves control of the electro-mechanical boom lock at the end of the barrier boom. When the barrier is closed, the boom lock is activated via this output. If a signal is present for opening, the boom lock is removed first. The barrier opens with a short delay. The parameter "With boom locking" must be activated in the menu "Boom locking". The parameter "with boom lock" must be activated in the menu "Boom lock". → Refer to page 61, chapter 3.18.3.

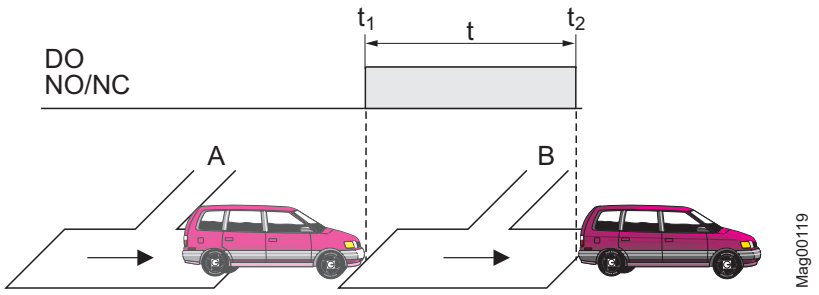
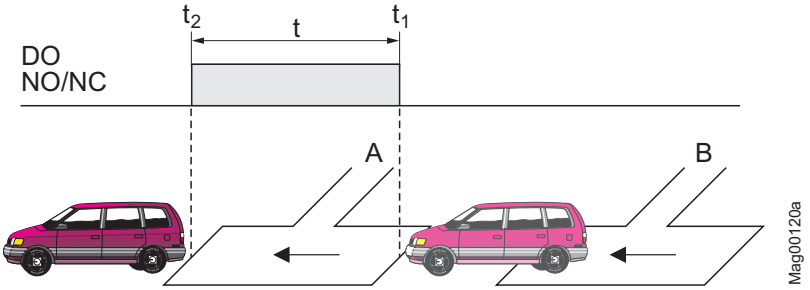
Function	Description
Parallel operation	**Control Unit:** MGC-Pro This output can be used to operate two barriers synchronously. This output function must be activated via the menu "Master/Slave". → Refer to page 56, chapter 3.17.4. → For information on parallel operation, see separate instructions.
Acknowledgement	**Control Unit:** MGC-Pro This output is required for parallel operation. → For information on parallel operation, see separate instructions.
Impact detection	**Control Unit:** MGC-Pro The output with this function is activated when an impact was recognised. The output is deactivated again once the barrier is opened again.
Barrier ready	**Control Unit:** MGC-Pro The output with this function is deactivated (fail safe) if the reference run (homing) is completed and release has taken place. → Also refer to page 50, chapter 3.15.7 parameter description "Start-up behaviour".
1. Parking zone full	**Control Unit:** MGC-Pro The output with this function is activated when all lots of the 1st parking zone are occupied. → For other information, see separate instructions "ECN-module".
2. Parking zone full	**Control Unit:** MGC-Pro The output with this function is activated when all lots of the 2nd parking zone are occupied. → For other information, see separate instructions "ECN-module".
Open	**Control Unit:** MGC-Pro While the barrier is opening or opened, the output with this function is active.
Closed	**Control Unit:** MGC-Pro While the barrier is closing or closed, the output with this function is active. This output signal can be used, e.g. as release signal for a ticket vending machine.
Loop active A [1)]	**Control Unit:** MGC-Pro and MGC When the induction loop A is busy, the output with this function is active.
Loop active B [1)]	**Control Unit:** MGC-Pro and MGC When the induction loop B is busy, the output with this function is active.
Loop active pulse A [1)]	**Control Unit:** MGC-Pro When a vehicle drives into loop A (rising flank), the output with this function emits an impulse.
Loop active pulse B [1)]	**Control Unit:** MGC-Pro When a vehicle drives into loop B (rising flank), the output with this function emits an impulse.
Loop inactive pulse A [1)]	**Control Unit:** MGC-Pro When a vehicle drives out of loop A (falling flank), the output with this function emits an impulse.

Digital inputs, digital outputs and output relays

Function	Description
Loop inactive pulse B [1)]	**Control Unit:** MGC-Pro When a vehicle drives out of loop B (falling flank), the output with this function emits an impulse.
Direction 1 Pls A => B [1)]	**Control Unit:** MGC-Pro The vehicle drives from direction A to B. When the vehicle leaves loop A in the direction of loop B, this output emits a counter impulse of 300 ms. 
Direction 1 Pls B => A [1)]	**Control Unit:** MGC-Pro The vehicle drives from direction B to A. When the vehicle leaves loop B in the direction of loop A, this output emits a counter impulse of 300 ms. 
Direction 2 Pls A => B [1)]	**Control Unit:** MGC-Pro The vehicle drives from direction A to B. When the vehicle drives on loop A in the direction of loop B, this output emits a counter impulse of 300 ms. 

Function	Description
Direction 2 Pls B => A [1)]	**Control Unit:** MGC-Pro The vehicle drives from direction B to A. When the vehicle drives on loop B in the direction of loop A, this output emits a counter impulse of 300 ms. 
Direction 1 A => B [1)]	**Control Unit:** MGC-Pro The vehicle drives from direction A to B. When the vehicle leaves loop A, this output starts emitting a permanent signal. When the vehicle leaves loop B, this output stops the permanent signal. This function can be used, e.g. to control traffic lights. 
Direction 1 B => A [1)]	**Control Unit:** MGC-Pro The vehicle drives from direction B to A. When the vehicle leaves loop B, this output starts emitting a continuous signal. When the vehicle leaves loop A, this output stops the permanent signal. This function can be used, e.g. to control traffic lights. 

Digital inputs, digital outputs and output relays

Function	Description
Direction 2 A => B [1)]	**Control Unit:** MGC-Pro The vehicle drives from direction A to B. When the vehicle enters loop B, this output starts emitting a continuous signal. When the vehicle leaves loop B, this output stops the permanent signal. This function can be used, e.g. to control traffic lights. 
Direction 2 B => A [1)]	**Control Unit:** MGC-Pro The vehicle drives from direction B to A. When the vehicle enters loop A, this output starts emitting a continuous signal. When the vehicle leaves loop A, this output stops the permanent signal. This function can be used, e.g. to control traffic lights. 
Module-Open prior [2)]	**Control Unit:** MGC-Pro This output function can be used to output the command "Open high priority" from the plug-in modules, such as "Ethernet", "Radio" or "RS485/422".
Module-Open [2)]	**Control Unit:** MGC-Pro This output function can be used to output the command "Opening" from the plug-in modules, such as "Ethernet", "Radio" or "RS485/422".
Module-Close [2)]	**Control Unit:** MGC-Pro This output function can be used to output the command "Closing" from the plug-in modules, such as "Ethernet", "Radio" or "RS485/422".

Function	Description
External [3]	**Control Unit:** MGC-Pro The output function "External" permits superordinated control of the output through the plug-in modules, such as "Ethernet" or "RS485/422" and the "service module".

1) This function is only available with the plug-in module "Detector" plugged in.

2) This function is only available with the plug-in module "Ethernet", "Radio" or "RS485/422" plugged in.

3) This function is only available with the plug-in module "Ethernet" " or "RS485/422" or the "service module" plugged in.

Table 5: Function "Digital outputs" and "Output relay"

3 Parameterising control unit

3.1 Safety

→ See operating instructions of the barrier, chapter "Occupational safety and special dangers".

Improper parameterisation

⚠ WARNING!

Risk of injury by improper parameterisation of the control unit!

Improper parameterisation of the control unit can lead to severe injuries!

Therefore:

– The parameterisation of the control unit may only be carried out by qualified personnel or professional electricians.
– The electrical connection of the signal generators to the IN1 to IN8 inputs must fit the parameterisation.

3.2 Changing menu language

The default setting in the control unit MGC is the menu language "English".

The menu language can be switched as follows:

1. The operating view is displayed.

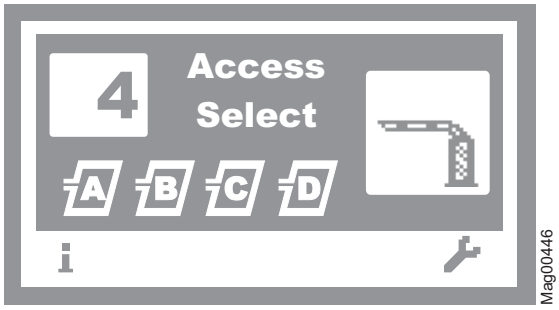


Fig. 1: Example "Operational view"

2. Access to parameterisation can be password-protected. If password protection was activated, you are asked to enter a password.

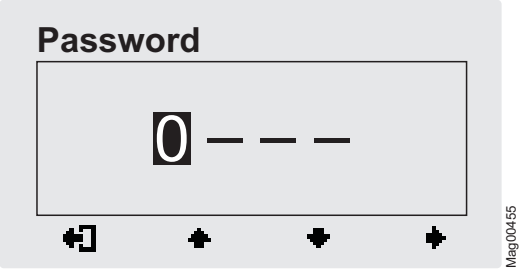


Fig. 2: View "Enter password"

3. The "Function" menu is displayed. The "Function" menu has a dark background and is thus selected.

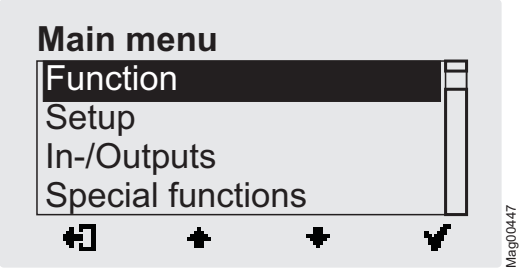


Fig. 3: View "Function"

4. Select the menu "System" with the two middle buttons ✥, ✥.

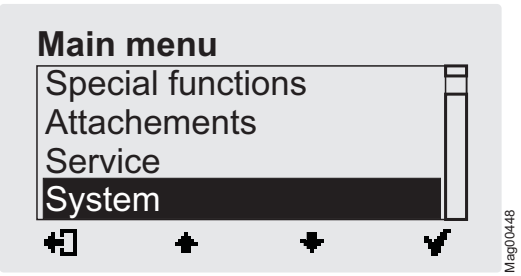


Fig. 4: View "Main menu – System"

5. Confirm selection with the right control button ✔. The following view is displayed. The menu "Language" is chosen.

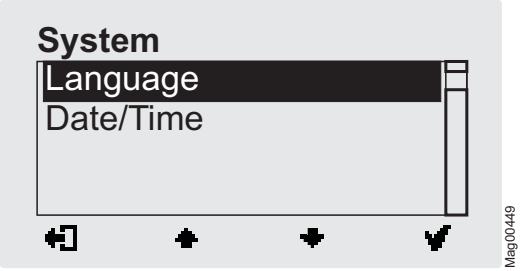


Fig. 5: View "Language"

6. Confirm selection with the right control button ✔. The following view is displayed. The menu language "English" is chosen.

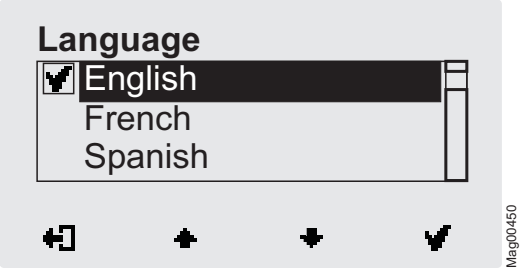


Fig. 6: View "Language" – English"

7. Select the language "German" with the two middle buttons ▲, ▼. The language "German" has a dark background.

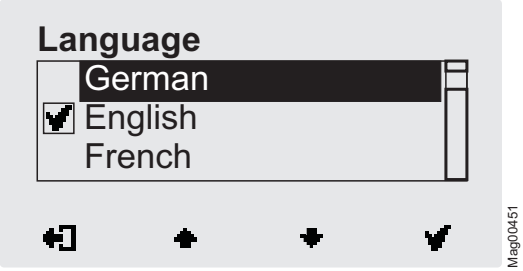


Fig. 7: View "Language" – German"

8. Use the right button ✔ to select the new menu language. Your selection is marked with the symbol ☑.

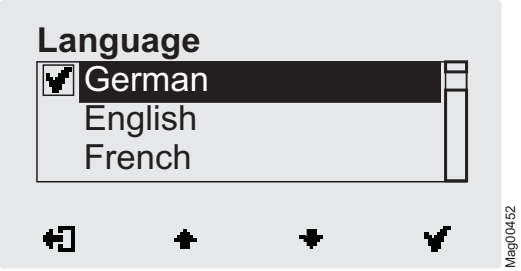


Fig. 8: View "Language" – German, step 2"

9. Use the left button ⏎ to leave the "Language" menu. The safety prompt "Save changes? " appears.

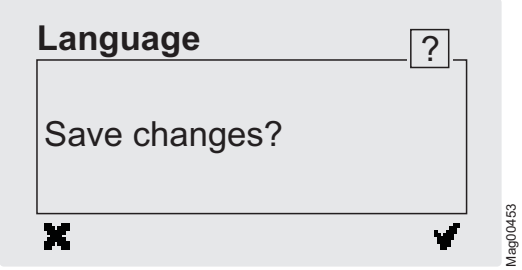


Fig. 9: View "Safety prompt – Save changes?"

Push the left button ✘ if you do not want to save the changes. The menu language "English" remains active.

10. Confirm safety prompt with the right control button ✔. The new menu language "German" is activated. The following view is displayed:

Fig. 10: View "Menu System – Menu language "German" is activated

11. Press the left button ⏎ repeatedly until the operating view is displayed again. → Refer to page 18, Fig. 1.

3.3 Entering password

You need to enter a password in the following cases:

- You would like to change parameters in the control unit and the password protection was activated.
- You would like to reset the parameters to factory settings.
- You would like to delete the assignment between all hand transmitters and the plug-in module "Radio remote control".

1. If a password is required, the following view is displayed:

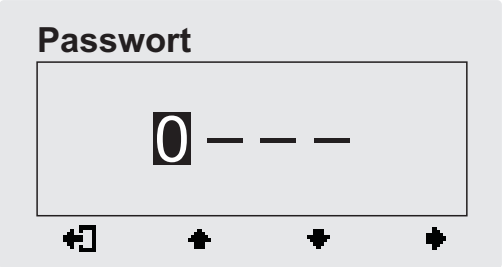


Fig. 11: View "Password"

2. Use the two middle buttons ▲ , ▼ to enter the first digit of the password.
3. Use the right button ▶ to select the second digit of the password. The following view is displayed:

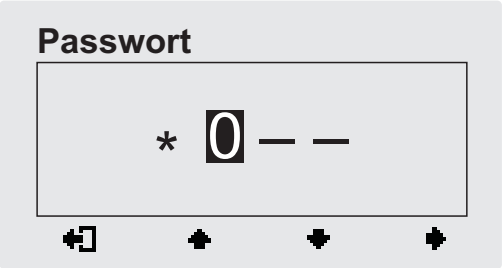


Fig. 12: View"Enter second digit of the password"

4. Use the two middle buttons ▲ , ▼ to enter the second digit of the password.
5. Use the right button ▶ to select the third digit of the password.
6. Use the two middle buttons ▲ , ▼ to enter the third digit of the password.

7. Use the right button to select the fourth digit of the password. The following view is displayed:

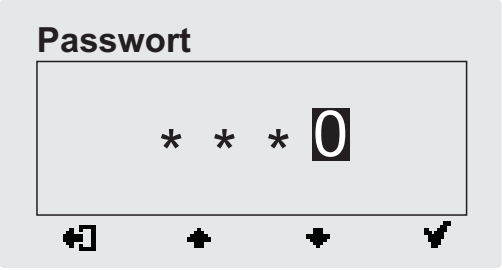


Fig. 13: View"Enter fourth digit of the password"

8. Use the two middle buttons , to enter the fourth digit of the password.
9. Confirm the password with the right control button .

3.4 Control elements control unit

Control elements control unit MGC (Magnetic Gate Controller)

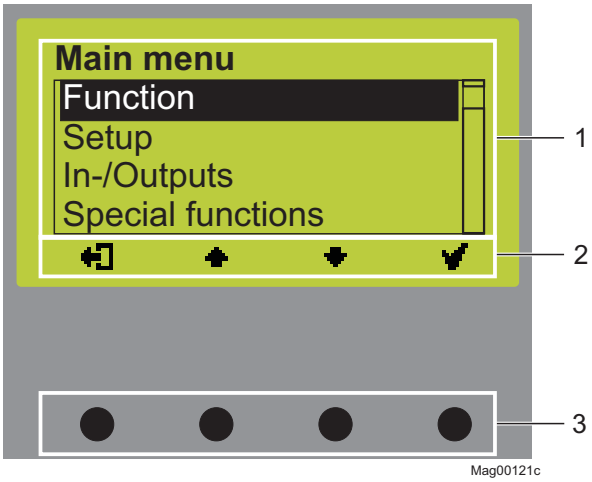


Fig. 14: Control unit elements MGC

1 Menu
2 Current function of the 4 control buttons
3 Control buttons

3.5 Displays on the control unit

Example "Operational view"

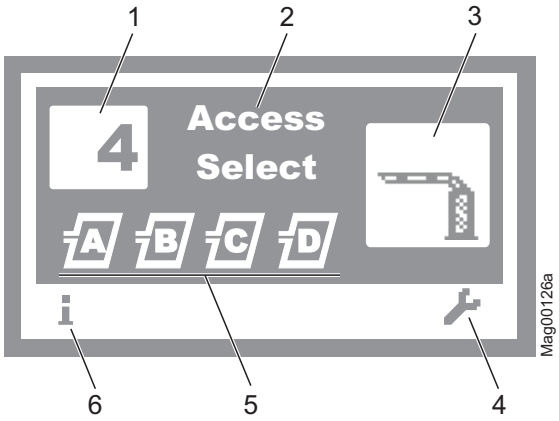


Fig. 15: Example "Operational view"

1 Programme mode, here programme mode 4
2 Barrier type, here type "Access Select"
3 Current state of the barrier, here barrier closed
4 Current function of the right control button, here calling menu "Main menu"
5 Current state of the induction loops
6 Current function of the left control button, here calling menu "Information"

Example "Screen change value"

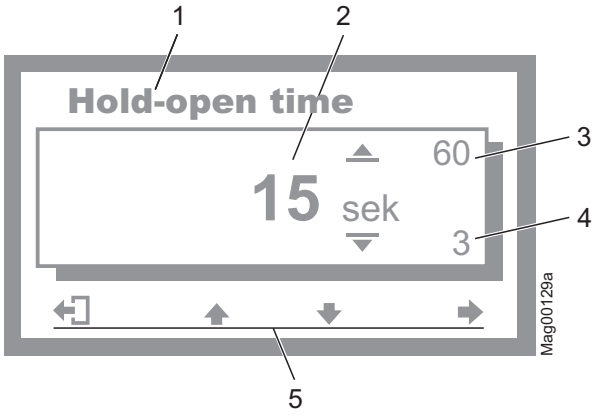


Fig. 16: Example "Screen Change value"

1 Parameter
2 Current value
3 Possible upper value
4 Possible lower value
5 Current functions control buttons

3.6 Symbols in the display

3.6.1 Control button functions

The control unit is equipped with 4 control buttons. The function of the control buttons change depending on the current view in the display. The current functions are displayed.

Symbols	Description
	■ Call menu "Information". ■ Scroll menu "Information".
	Perform loop reconciliation
	■ Call menu "Main menu" Make all settings in the menu "Main menu". ■ Menu "Information" → Menu "Detector": Perform reference of the induction loops.
	Leave current menu level. The next-higher menu level is displayed.
	■ Call next-lower menu level. ■ Select desired option or desired value. When the desired option was selected, the symbol  is displayed.
	Option was selected but not yet stored
	■ Within one menu level: Move cursor (market) upwards. ■ For setting value: Increase figure.
	■ Within one menu level: Move cursor (market) downwards. ■ For setting value: Decrease figure.
	■ Move cursor one position to the right. ■ Menu "Information" → Menu "Detector", for plug-in module "Detector (C-D)": Call view "Detector (C-D)" and switch between "Detector (A-B)" and "Detector (C-D)".
	Programme mode "Service": Manually open the barrier.
	Programme mode "Service": Manually close the barrier.
	■ Delete error message. ■ When changing settings: Cancel changing process.

Table 6: Control button functions

3.6.2 Current state of the barrier

The barrier can have the following states:

Symbols	Description
	Barrier boom closed.
	Barrier boom open.
	Barrier boom opens.
	Closing signal was recognised. Traffic lights active. Barrier closes in 5 seconds. Time for traffic light lead is counted down.
	Barrier boom closes.
	Monitoring unit used.
	Barrier boom position unknown. "Homing" active.
	Barrier boom stopped
	An error is present.

Table 7: Current state of the barrier

3.6.3 Current programme mode

Symbols	Description
	Current programme mode, here programme mode 4 → For description of programme modes, refer to page 31, chapter 3.11.
	Programme mode "Service" → For description of programme mode "Service", refer to page 40, chapter 3.11.7.

Table 8: Current programme mode

3.6.4 Current state of the induction loops

Symbols	Description
	Loop A and B connected. The induction loop function is OK. If the icon flashes, the loop is occupied. If another "detector" plug-in module is connected, these induction loops are marked "C" and "D".
	The induction loop assumes the function of the safety loop. → Refer to page 65, chapter 3.23.
	Reference is performed.
	Induction loop deactivated.
	Induction loop defective.

Table 9: Current state of the induction loops

3.6.5 Further symbols

Symbols	Description
	Wrong password entered. Access denied.
	Reset values to factory settings. Enter the password "0000" for this.

Table 10: Further symbols

3.7 Setting display contrast

Setting display contrast

The display contrast of the control unit can be set after activation while the logo is still displayed. The logo is displayed for 3 seconds.

If you push one of the middle buttons ✚, ✚ , the display time of the logo extends by 2 seconds per push. You can thus extend the time to set the display contrast.

- Increase contrast, display grows darker: ✚button.
- Reduce contrast, display grows lighter: ✚button.

The set display contrast is saved automatically.

3.8 Protecting parameterisation from access

You can apply the access to the main menu with password protection.

→ Refer to page 63, chapter 3.19.

3.9 Parameterising options

→ Menu setup, refer to page77.

→ Programme modes overview, refer to page 31.

Example: Select programme mode

1. The operating view is displayed. → Refer to page 24, Fig. 15.
2. Press right operating button .
3. The "Main menu" menu is displayed.
4. The "Function" menu is highlighted with a dark background and therefore selected. If required, select the "Function" menu with the two middle buttons , .
5. Confirm selection with the right control button .
6- The "Programme mode" menu has a dark background and is thus selected.
7. Confirm selection with the right control button .
8. A list with the possible programme modes is displayed.
9. Select the desired programme mode with the two middle buttons , .
10. Use the right button to select the new programming mode. Your selection is marked with the symbol .
11. Use the left button to leave the "Programme Mode" menu.
12. The safety prompt "Save changes?" appears.
    - If the changes are to be saved, press the right button . The new programme mode is activated.
    - If the changes are not to be saved, press the left button . The previous programme mode remains active.
13. The menu "Function" is displayed.
14. Press the left button repeatedly until the operating view is displayed again.

3.10 Parameterising values

Example: Change hold-open time

1. The operating view is displayed. → Refer to page 24, Fig. 15.
2. Press right operating button .
3. The "Main menu" menu is displayed.
4. Select the menu "Setup" with the two middle buttons , .
5. Confirm selection with the right control button .
6. Select the menu "Delays" with the two middle buttons , .
7. Press right control button .
8. The "Hold-open time" parameter is highlighted with a dark background and therefore selected. If required, select the "Hold-open time" parameter with the two middle buttons , .
9. Press right control button .
10. The current hold-open time value is displayed. The cursor flashes on the first digit.
11. Use the middle buttons , to set the desired digit.
12. Use the right button to move the cursor to the right.
13. The cursor flashes on the second digit.
14. Use the middle buttons , to set the desired digit.
15. Press the right button .
16. Use the left button to leave the "Hold-open time" parameter.
17. The safety prompt "Save changes?" appears.
    - If the changes are to be saved, press the right button . The new hold-open time is activated.
    - If the changes are not to be saved, press the left button . The previous hold-open time remains active.
18. The "Delays" menu is displayed.
19. Press the left button repeatedly until the operating view is displayed again.

3.11 Select programme mode

Overview programme modes

8 programme modes and the service mode are available for the MHTM™ MicroDrive barriers.

Programme modes 1 to 4 are manual modes. In the manual modes, the barrier must be closed manually after a drive through.

Programme modes 5 to 8 are automatic modes. In the automatic modes, the barrier closes again automatically after a vehicle drives through.

Programme	Description
1	Maintained contact
2	Deadman
3	Pulse control (bistable)
4	Two-Pulse control (Open/Closed button) (Factory setting)
5	Automatic (5): with hold-open time
6	Automatic (6): with hold-open time and decoupling of the opening loop at drive through in the opposite direction
7	Automatic (7): without hold-open time
8	Automatic (8) without hold-open time and decoupling of the opening loop at drive through in the opposite direction
🔧	Service

Table 11: Programme modes

Select programme mode

→ Another programme mode can be selected pursuant to chapter 3.7, page 28.

NOTE!

For reasons of safety, the first barrier boom motion after programme mode change is performed at slow speed.

3.11.1 Mode 1: Permanent signal

Typical application

This mode is suitable, e.g. for parallel operation of two barriers.
→ Refer to page 56, chapter 3.17.4 "Master/Slave".

Function

The barrier is controlled only by one switch.

When the switch is closed, the barrier closes. When the switch is opened, the barrier opens.

Supported input functions

Direction	Input function	Signal type
Open	Open high priority (priority 1)	Impulse signal
Close	Close (priority 2)	Permanent signal

Table 12: Supported input functions "permanent signal"

→ Also refer to page 7, chapter 2.1 "Digital inputs".

3.11.2 Mode 2: Deadman

Typical application

This mode is suitable for barriers on parking places, factory premises, etc. The barrier must be operated by a person.

Function

The barrier is operated by two buttons.

While the button "Open" is pressed, the barrier opens. While the button "Close" is pressed, the barrier closes. If no button is pressed, the barrier boom stops.

NOTE!

You can use the input function "Additional safety device" for a release signal for closing.

Supported input functions

Direction	Input function	Signal type
Open	Open high priority (priority 1)	Permanent signal
	Open low priority (priority 3)	Permanent signal
Close	Close (priority 2)	Permanent signal

Table 13: Supported input functions "Deadman"

→ Also refer to page 7, chapter 2.1 "Digital inputs".

3.11.3 Mode 3: One button (bistable)

Typical application

This mode is suitable for barriers on factory premises, etc. that are little frequented by vehicles. The signal generator may be, e.g. a wireless button. The barrier must be operated by a person.

Function

The barrier is opened and closed by one command unit (pulse repetition). Every impulse changes the barrier's movement direction. The impulse must be present between 100 and 300 ms.

- 1. Signal: barrier opens
- 2. Signal: barrier closes
- 3. Signal: barrier opens

etc.

If another impulse is given during closing, the barrier opens. If another impulse is given during opening, the barrier opens completely and closes afterwards for reasons of safety.

Supported input functions

Direction	Input function	Signal type
Open and close alternately	Open high priority (priority 1)	Impulse or permanent signal
	Open low priority (priority 2)	Impulse or permanent signal

Table 14: Supported input functions "One button"

→ Also refer to page 7, chapter 2.1 "Digital inputs".

3.11.4 Mode 4: Two buttons (Open/Closed button)

Typical application

This mode is suitable for barriers on factory premises, etc. that are often frequented by vehicles. The barrier must be operated by a person.

Function

The input function "Open low priority " is subordinated to the input function "Close". This means that while a closing signal is applied, a signal at the input "Open low priority" is ignored.

Supported input functions

Direction	Input function	Signal type
Open	Open high priority	Impulse or permanent signal
	Open low priority	Impulse or permanent signal
	Opening with vend count	Impulse signal
Close	Close	Impulse or permanent signal

Table 15: Supported input functions "Two buttons"

→ Also refer to page 7, chapter 2.1 "Digital inputs".

3.11.5 Automatic Modes 5 to 8: Drive directions 1 – overview and differences

The automatic modes differ in their functions in drive direction 1 "Safety loop → Opening loop".

In drive direction 2 "Opening loop → Safety loop", the automatic modes are identical. → Refer to page 39, chapter 3.11.6.

Drive direction 1: "Safety loop → Opening loop"

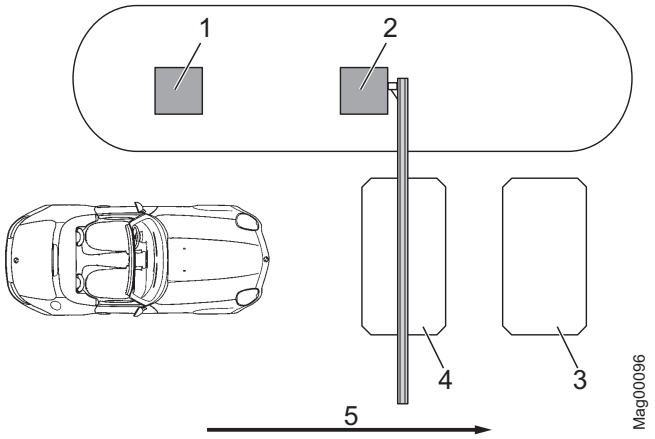


Fig. 17: Programme modes 5 to 8, Passage in direction 1

1 Remote control, card reader, coin acceptor, etc.
2 Barrier
3 Opening loop
4 Safety loop
5 Passage in direction 1

Programme mode	Hold-open time	Function Opening loop	Closing time drive backwards	Closing time without drive through
Automatic (5)	With hold-open time	The opening loop here acts as an extended safety loop.	If a vehicle drives onto the safety loop and leaves it again backwards, the barrier closes.	Barrier closes after the end of the opening time or at a closing signal.
Automatic (6)		The opening loop does not act as an extended safety loop here.		
Automatic (7)	Without hold-open time	The opening loop here acts as an extended safety loop.		Barrier closes after drive-through of the next vehicle or after the closing signal.
Automatic (8)		The opening loop does not act as an extended safety loop here.		

Table 16: Differences of automatic programme modes 5 to 8, direction 1

Mode 5: Automatic (5)

Typical application

This mode is suitable for the automatic operation of a barrier, e.g. with card readers, remote control, coin acceptors and induction loops or light barriers. Passage of the barrier is possible in either direction.

Function

The barrier is opened from direction 1 "Safety loop → Opening loop" with an impulse at the "Open low priority" impulse, e.g. with a card reader or coin acceptor. The hold-open time that was set is also started.

When the vehicle leaves the safety loop, the hold-open time is deleted.

The barrier closes in the following cases:

- If the vehicle drives over both loops in direction 1, the barrier closes as soon as the vehicle leaves the opening loop. The opening loop here acts as an extended safety loop.
- If a vehicle drives onto the safety loop but leaves it again backwards, the barrier closes at once.
- If the vehicle drives over neither of the two loops, i.e. there is no drive through, the barrier closes after the end of the hold-open time.

→ For barriers with a safety light barrier but no safety loop installed, see page 55. chapter 3.17.1.

Mode 6: Automatic (6)

Typical application

This mode is suitable for the automatic operation of a barrier, e.g. with card readers, remote control, coin acceptors and induction loops or light barriers. Passage of the barrier is possible in either direction.

Function

The barrier is opened from direction 1 "Safety loop → Opening loop" with an impulse at the "Open low priority" impulse, e.g. with a card reader or coin acceptor. The hold-open time that was set is also started.

When the vehicle leaves the safety loop, the hold-open time is deleted.

The barrier closes in the following cases:

- If the vehicle drives over both loops in direction 1 "Safety loop → Opening loop", the barrier closes as soon as the vehicle leaves the safety loop. The opening loop here does not act as an extended safety loop.
- If a vehicle drives onto the safety loop but leaves it again backwards, the barrier closes.
- If the vehicle drives over neither of the two loops, i.e. there is no drive through, the barrier closes after the end of the hold-open time.

→ For barriers with a safety light barrier but no safety loop installed, see page 55. chapter 3.17.1.

Mode 7: Automatic (7)

Typical application

This mode is suitable for the automatic operation of a barrier, e.g. with ticket vending machines with internal logic. Passage of the barrier is possible in either direction.

Function

From direction 1 "Safety loop → Opening loop", the barrier is opened by an opening signal at one of the digital opening inputs. Hold-open time is not active in this mode.

The barrier closes in the following cases:

- If the vehicle drives over both loops in direction 1, the barrier closes as soon as the vehicle leaves the opening loop. The opening loop here acts as an extended safety loop.
- If a vehicle drives onto the safety loop but leaves it again backwards, the barrier closes.
- If the vehicle does not drive onto any of the two loops, the barrier remains open until a vehicle drives through or a closing signal is given.

→ For barriers with a safety light barrier but no safety loop installed, see page 55. chapter 3.17.1.

Mode 8: Automatic (8)

Typical application

This mode is suitable for the automatic operation of a barrier, e.g. with ticket vending machines with internal logic. Passage of the barrier is possible in either direction.

Function

From direction 1 "Safety loop → Opening loop", the barrier is opened by an opening signal at one of the digital opening inputs. Hold-open time is not active in this mode.

The barrier closes in the following cases:

- If the vehicle drives over both loops in direction 1 "Safety loop → Opening loop", the barrier closes as soon as the vehicle leaves the safety loop. The opening loop here does not act as an extended safety loop.
- If a vehicle drives onto the safety loop but leaves it again backwards, the barrier closes.
- If the vehicle does not drive onto any of the two loops, the barrier remains open until a vehicle drives through or a closing signal is given.

→ For barriers with a safety light barrier but no safety loop installed, see page 55. chapter 3.17.1.

Modes 5 to 8: Automatic (5) to (8) - supported input functions

Direction	Input function	Signal type
Open	Open high priority	Impulse or permanent signal
	Open low priority	Impulse or permanent signal
	Opening with vend count	Impulse signal
	Ext. opening loop entry	Impulse or permanent signal
	Ext. opening loop exit	Impulse or permanent signal
Close	Close	Impulse or permanent signal

Table 17: Supported input functions "Automatic (5) to (8)"

→ Also refer to page 7, chapter 2.1 "Digital inputs".

3.11.6 Automatic Modes 5 to 8: Drive direction 2

In drive direction 2 "Opening loop → safety loop", the automatic modes are identical.

Closing barrier boom – maximum distance of the induction loops

⚠ WARNING!

WARNING!

Danger from closing boom!

A closing boom may cause severe or lethal injury to persons, bicyclers, cabriolet drivers and motorcycle drivers!

Therefore:

– The maximum distance between opening loop and safety loop must be not greater than max. 1 m. In direction 2 "Opening loop → Safety loop", the barrier closes as soon as the vehicle leaves the opening loop. This means, if the distance is too large, the barrier closes before the car has cleared the barrier. → See operating instructions of the barrier, chapter "Design notes for induction loops".

Drive direction 2: "Opening loop → Safety loop"

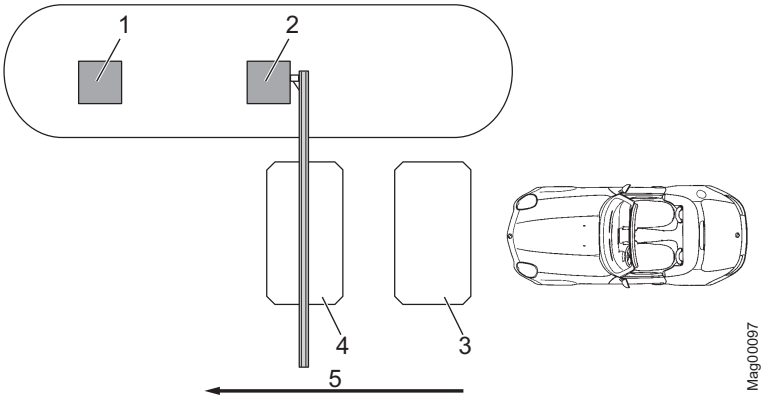


Fig. 18: Programme modes 5 to 8, Passage in direction 2

1 Remote control, card reader, coin acceptor, etc.
2 Barrier
3 Opening loop
4 Safety loop
5 Passage in direction 2

In direction 2, the opening loop is driven on first. The barrier opens. While the opening loop or safety loop is occupied, the barrier remains open. When the vehicle has left both loops, the barrier closes.

Hold-open time is not active in drive direction 2.

When the vehicle leaves the opening loop backwards, the barrier closes at once.

3.11.7 Mode "Service "

In the "Service" mode, all opening and closing signals are ignored. The functions of safety devices like the safety loop or safety light barrier remain active for security reasons. This means that as soon as, e.g., the safety loop is occupied, the barrier cannot be closed.

Switch on Mode "Service "

Switch the "Service" switch for the "Service" mode. The LED lights red. The display backlighting flashes.

Switch off Mode "Service "

After the service work, the switch "Service" must be switched. The LED must light green.

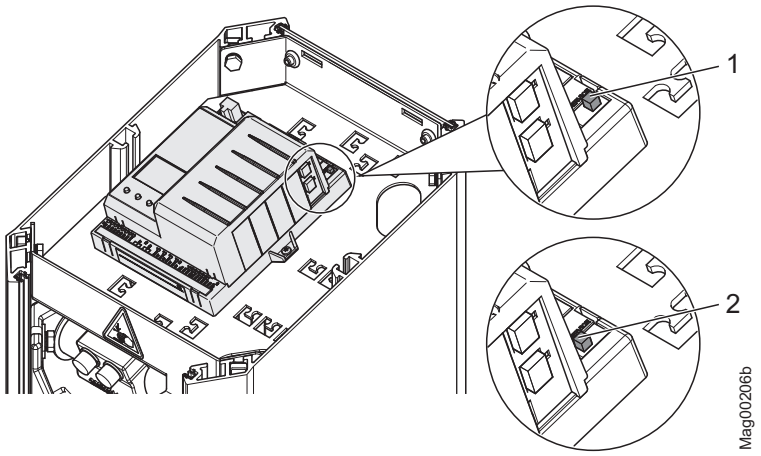


Fig. 19: Service switch

1 Mode "Service" on
2 Mode "Service" off

Button function

In the "Service" mode, you can control the motor with the two middle control buttons.

- Middle left button : Manually open the barrier.
- Middle right button : Manually close the barrier.

NOTE!

For reasons of safety, the first barrier boom motion after programme mode change is performed at slow speed.

3.12 Menu "Information" (i)

Call and navigate

1. The operating view is displayed. → See page 24, Fig. 15.
2. Press left control button i.
3. Use the left control button i to scroll within the menu.
4. The "Information" menu is can be left as follows:
   - Press the left control button i repeatedly until the operating view is displayed again or
   - Press right control button control button.

Operating view → Information	
Parameters	**Description**
Error messages	Shows the currently pending errors. If no error messages are present, the menu is not displayed.
Inputs	Displays the current settings for the digital inputs IN1 to IN8
Outputs	Displays the current settings for the digital outputs DO1 to DO4 and the relay outputs NO1 to NO3 and NO/NC4 to NO/NC6.
Module info	Display of the software numbers (software #) and software versions (SW version) of the control unit and plugged-in plug-in modules.
Induction loops Detector (A-B), Detector (C-D)	Displays the current frequencies of the connected induction loops. The first plug-in module is displayed as "Detector (A-B)". The second plug-in module is displayed as "Detector (C-D)". The frequencies of induction loops A and B are displayed directly. To display the frequencies for the induction loops C and D, you have to press the button . Use the button you can switch the view between "Detector (A-B)" and "Detector (C-D)". → Also refer to page 65, chapter 3.23Menu .

Table 18: Menu "Information"

3.13 Menu "Function"

3.14 Programme mode (Prog. mode)

→ Refer to page 31, chapter 3.11.

3.15 Menu "Setup"

3.15.1 Barrier speed

Operating view → Main menu → Setup → Speed	
Parameters	**Description**
Closing	Select the closing speed for the barrier boom. The closing speed can be changed for all barrier types. The option "fast" corresponds to the barrier-specific speed (100 %). **Options** ■ slow: approx. 50 % of the maximum speed ■ medium: approx. 70 % of the maximum speed ■ fast: maximum speed (barrier-specific speed) **Factory setting** ■ fast
Open	Select the opening speed for the barrier boom. The option "fast" corresponds to the barrier-specific speed (100 %). The parameter is displayed for the following barrier types: Access Pro, Access Pro L, Access Pro H, Access Select, Access Select L, Access XL and Access XXL, Parking Pro and Parking Select, Toll Pro and Toll HighSpeed with MGC-Pro control unit. **Options** ■ slow: approx. 50 % of the maximum speed ■ medium: approx. 70 % of the maximum speed ■ fast: maximum speed (barrier-specific speed) **Factory setting** ■ fast

Table 19: Menu "Barrier speed"

3.15.2 Delays

Operating view → Main menu → Setup → Delay	
Parameters	**Description**
Hold-open time	The parameter "Hold-open time" sets the hold-open time for the automatic programme modes 5 and 6. The hold-open time is started by an opening impulse by a control unit, such as a card reader. A passage should occur during the set hold-open time. If no passage occurs during the hold-open time, the barrier closes automatically. When the vehicle drives on the safety loop, the hold-open time is deleted. **Setting range** ■ 3 to 60 s **Factory setting** ■ 30 s

Operating view → Main menu → Setup → Delay	
Parameters	**Description**
Close delay	The barrier only closes if the set time for the closing delay is over. The timer for closing delay is started with the closing signal. With this parameter, you can also set the "Lead time" in the "Signal light" menu to the same menu. → Refer to page 57, chapter 3.18.1. **Setting range** ■ 0 to 15 s **Factory setting** ■ 0 s
Light barrier delay	The barrier only closes if the set time for the light barrier delay is over. The timer for light barrier delay is started with clearance of the light barrier. **Setting range** ■ 0 to 15 s **Factory setting** ■ 5 s
Impact delay	After the control unit has recognised that, e.g., a vehicle roof was hit by the closing barrier boom, the control unit tries to close the barrier again after the set impact delay. Impact is possible if, e.g., a user tries to drive through the barrier without permission. The following conditions must be met for the barrier to close after the end of the impact delay: ■ In the "Impact settings" menu, the parameter "Restart" must be set to "Automatic". ■ The safety devices, such as safety loop or safety light barrier must be clear. → Also refer to page 48, chapter 3.15.5 Menu "Impact settings" **Setting range** ■ 5 to 30 s **Factory setting** ■ 5 s

Table 20: Menu "Delays"

3.15.3 Cut off angle

Operating view → Main menu → Setup → Cut off angle	
Parameters	**Description**
Safety loop close	This parameter serves to ensure that a closed barrier can not be opened without authorisation. If the barrier boom is below the angle set for "Safety loop close", signals form the safety devices such as safety loop or safety light barrier are ignored. I.e., the barrier closes completely below the angle set here. **Setting range** ■ Access: 1 to 40° ■ Access XL and Access XXL: 1 to 40° ■ Parking: 1 to 80° ■ Toll and Toll HighSpeed: 1 to 80°
Light barrier	If the barrier boom is below the set angle for "Light barrier" during closing, the light barrier is ignored. I.e., the barrier closes completely below the angle set here even if the light barrier is covered. **Setting range** ■ 1 to 40° **Factory setting** ■ 10°
Impact detection	Where the barrier boom is below the set angle for impact detection during closing, impact detection is deactivated. I.e., the barrier tries to close completely below the angle set here. Observe the length of the barrier boom when setting the angle. The barrier boom tip height at impact detection depends on the angle set and the barrier boom length. **Setting range** ■ 1 to 40° **Factory setting** ■ 10°

Table 21: Menu "Cut off angle"

3.15.4 Vend count

Operating view → Main menu → Setup → Vend count	
Parameters	**Description**
Reset behaviour	Use this parameter to set vend count reset behaviour. The function "Vend count" is available for programme modes 4 to 8. An internal vend count counts the impulses present at the input with the "Opening with vend count" function. The pulses are decremented only in driving direction 1 "Safety loop → Opening loop". **Options** ■ no counter reset (without vend count reset) ■ Time-out The vend count is set to the value "0" if the vehicle does not pass the supervision device within the set hold-open time. ■ Reset on closing The vend count is set to value "0" when a closing signal is given. ■ Time-out/Reset on closing The vend count is set to the value "0" if the event "Time-out" or the event "Reset on closing" occurs. **Factory setting** ■ Time-out/Reset on closing
Counter	This parameter shows the current counter reading of the vend count.
Count open loop	This function is sensible for systems where the opening loop is installed farther than one vehicle length away from the safety loop. The opening loop must be connected to a detector module. When using this function, passage is permitted in one direction only. Once the function is activated, passages over the opening loop are counted as impulse. The direction is not considered when decrementing the impulses. **Options** ■ Deactivated [...] ■ Activated [X] **Factory setting** ■ Deactivated [...]

Table 22: Menu "Vend count"

NOTE!

By default, the internal vend count is decremented after safety loop and opening loop are driven over. In the following systems, the vend count is decremented after the safety loop is driven over already: No opening loop is activated or the option "Inactive" was chosen for the parameter "Count open loop".

Example vend count with programme mode "Automatic mode (5)"

This mode is suitable for the automatic operation of a barrier, e.g. with card readers, remote control, coin acceptors and induction loops or light barriers. The control units and the barrier have a larger distance from each other. An internal vend count is incremented and decremented. The hold-open time counts down at the same time. Passage of the barrier is possible in either direction.

Drive direction 1: "Safety loop → Opening loop"

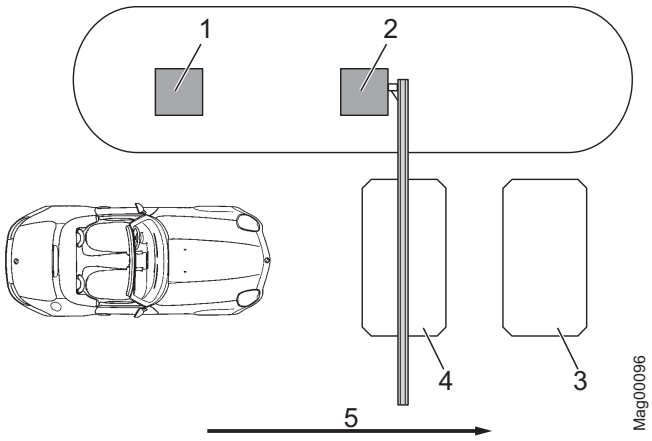


Fig. 20: Programme mode 5 with vend count, Passage in direction 1

1 Remote control, card reader, coin acceptor, etc.
2 Barrier
3 Opening loop
4 Safety loop exit
5 Passage in direction 1

The barrier is opened from direction 1 "Safety loop → Opening loop" with an impulse at the "Opening with vend count" impulse, e.g. with a card reader or coin checking device. At the same time, an internal vend count is incremented. For the parameter "Count open loops", the option "Inactive" is set.

After passage of the safety loop and the opening loop, the vend count is decremented again. When the internal vend count reaches the value "0, the barrier is closed.

Additionally, the vend count is set to the value "0" and the barrier closed in the following cases, depending on the settings for the "Vend count" parameter:

- The vehicle does not drive over the supervision facility within the set hold-open time.
- A closing signal is assigned.

The barrier closes in the following cases:

- If the vehicle drives over both loops in direction 1, the barrier closes as soon as the vehicle leaves the opening loop. The opening loop here acts as an extended safety loop.
- If a vehicle drives onto the safety loop but leaves it again backwards, the hold-open time is deleted and the barrier closes.
- If the vehicle drives over neither of the two loops, i.e. there is no drive through, the barrier closes depending on setting of the "vend count" parameter.

Drive direction 2: "Opening loop → Safety loop"

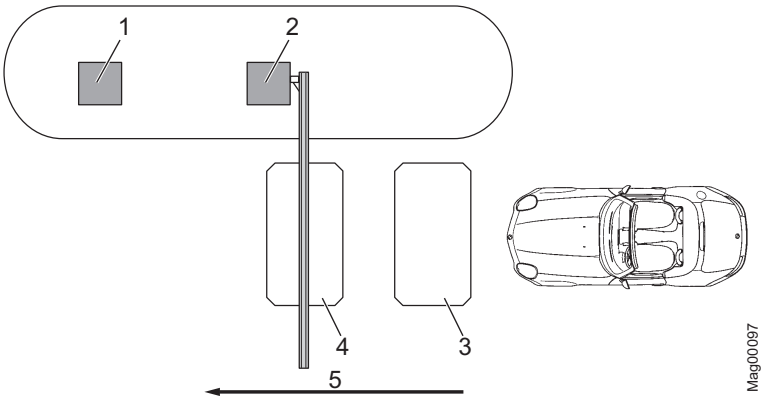


Fig. 21: Programme mode 5 with impulse storage, Passage in direction 2

1 Remote control, card reader, coin acceptor, etc.
2 Barrier
3 Opening loop
4 Safety loop exit
5 Passage in direction 2

In direction 2, the opening loop is driven on first. The barrier opens. While the opening loop or safety loop is occupied, the barrier remains open. When the vehicle has left both loops will the barrier close.

From drive direction 2, vend count is not active.

When the vehicle leaves the opening loop backwards, the barrier closes at one.

3.15.5 Impact settings

Operating view → Main menu → Setup → Impact settings	
Parameters	**Description**
Impact response	Select the barrier boom's impact reaction if the control unit detects an impact. → Refer to parameter "Impact detection" page 44, chapter 3.15.3. Select the barrier boom's impact reaction if the control unit detects an impact. This setting relates to the impact detection while the barrier boom closes. If an impact is recognised during opening, the barrier boom is stopped. **Options** ■ Open After impact detection, the barrier boom is opened completely. ■ Stop After impact detection, the barrier boom's closing movement is stopped. ■ Safe stop After impact detection, the barrier boom's closing movement is first stopped and then slightly opened. **Factory setting** ■ Open
Impact delay	After the control unit has recognised that, e.g., a vehicle roof was hit by the closing barrier boom, the control unit tries to close the barrier again after the set impact delay. Impact is possible if, e.g., a user tries to drive through the barrier without permission. The following conditions must be met for the barrier to close after the end of the impact delay: ■ In the "Restart" parameter, the option must be set to "Automatic". ■ The safety devices, such as safety loop or safety light barrier, must be clear. This parameter corresponds to the parameter "Impact delay" in the "Delays" menu. → Refer to page 42, chapter 3.15.2. **Setting range** ■ 5 to 30 s **Factory setting** ■ 5 s
Restart	Select behaviour of the barrier after impact recognition. **Options** ■ Automatic The barrier boom automatically completes the started movement after the impact delay has run. ■ Signal For the barrier boom to complete the started movement, the matching signal (open/close) must be applied. **Factory setting** ■ Signal

Table 23: Menu "Impact settings"

3.15.6 Start-up settings

Use this menu to select the start-up settings of the barrier according to the following events:

- after switching on voltage supply
- after return of voltage
- after reset

Homing

When the barrier starts up, the barrier performs a homing run. The barrier boom is opened at reduced speed to the upper end position. This process is also called homing.

Operating view → Main menu → Setup → Start-up settings	
Parameters	**Description**
Start-up behaviour	Select start-up behaviour of the barrier. → Refer to page 50, chapter 3.15.7 "Start-up behaviour". **Setting range** ■ 1 … 8 **Factory setting** ■ 1
Stay closed	Select start-up behaviour for the barrier when the barrier boom is in the "closed" position. **Options** ■ Activated [X] If the barrier boom is in the "closed" position, the selected start-up behaviour is ignored. If the barrier boom is in any other position, the barrier will act according to the chosen start-up behaviour. Before homing,m the barrier position is inspected. A short movement in the closing direction is performed to check if the barrier is closed. If the barrier is closed, the barrier remains closed until an opening signal is pending. The opening signal is used for homing. No release signal is required. ■ Deactivated [ ] The barrier behaves according to the selected start-up behaviour. **Factory setting** ■ Deactivated [...]

Table 24: Menu "Start-up settings"

3.15.7 Start-up behaviour

NOTE!

The display messages "Waiting for passage" and "Waiting for release" can be confirmed with the left button of the control unit. Ensure that no persons or vehicles are present below the barrier boom. In operating modes 3 to 8, the barrier will close as soon as the message has been confirmed. In operating modes 1 and 2, a closing signal is still required after the message is confirmed.

Operating view → Main menu → Setup → Start-up behaviour	
Option	**Description**
1	**Reference run** In this option, the barrier initially performs a reference run. This means that the barrier opens completely at low speed. **Release signal** No release signal is required to close the boom. **Closing behaviour** ■ Programme modes 1 or 2: If a safety loop is installed, the barrier closes only after a vehicle has passed through and a permanent closing signal is pending. If only a safety light barrier is installed, no passage is required. The barrier closes at once when a permanent closing signal is applied. ■ Programme modes 3 to 8: If a safety loop is installed, the barrier closes when the first vehicle has driven through. If only a safety light barrier is installed, the barrier closes at once when the voltage returns.
2	**Reference run** In this option, the barrier initially performs a reference run. This means that the barrier opens completely at low speed. **Release signal** A release signal must be applied for the barrier to be ready fro closing. The release signal can be applied even before the voltage returns. The release signal is given either by an external closing signal, an external opening signal or by pushing the left operating button at the control unit. **Closing behaviour** ■ Programme modes 1 or 2: If a safety loop is installed, the barrier closes only after a vehicle has passed through and a permanent closing signal is pending. If only a safety light barrier is installed, no passage is required. The barrier closes at once when a permanent closing signal is applied. ■ Programme modes 3 to 8: If a safety loop is installed, the barrier closes when the first vehicle has driven through. If only a safety light barrier is installed, the barrier closes at once when the voltage returns.

Operating view → Main menu → Setup → Start-up behaviour	
Option	**Description**
3	**Reference run** In this option, the barrier initially performs a reference run. This means that the barrier opens completely at low speed. **Release signal** A release signal must be applied for the barrier to be ready for closing. If the release signal is applied before return of voltage, the release signal is ineffective. In this case, the release signal must be revoked and applied again after the barrier opens. The release signal can be given by an external closing signal or by pushing the left operating button at the control unit. **Closing behaviour** ■ Programme modes 1 or 2: If a safety loop is installed, the barrier closes only after a vehicle has passed through and a permanent closing signal is pending. If only a safety light barrier is installed, no passage is required. The barrier closes at once when a permanent closing signal is applied. ■ Programme modes 3 to 8: If a safety loop is installed, the barrier closes only after the first vehicle has driven through. If only a safety light barrier is installed, the barrier closes at once when the voltage returns.
4	**Reference run** In this option, the barrier boom stops initially. The barrier will only carry out a reference run after a release signal. **Release signal** A release signal must be applied for the barrier to carry out a reference run. If the release signal is applied before return of voltage, the release signal is ineffective. In this case, the release signal must be revoked and applied again after the barrier opens. The release signal can be given by an external closing signal or by pushing the left operating button at the control unit. **Closing behaviour** ■ Programme modes 1 or 2: If a safety loop is installed, the barrier closes only after a vehicle has passed through and a permanent closing signal is pending. If only a safety light barrier is installed, no passage is required. The barrier closes at once when a permanent closing signal is applied. ■ Programme modes 3 to 8: If a safety loop is installed, the barrier closes only after the first vehicle has driven through. If only a safety light barrier is installed, the barrier closes at once when the voltage returns.

Operating view → Main menu → Setup → Start-up behaviour	
Option	**Description**
5	**Reference run** In this option, the barrier boom stops initially. The barrier will only carry out a reference run after a release signal. **Release signal** A release signal must be applied for the barrier to be ready fro closing. The release signal can be applied even before the voltage returns. The release signal is given either by an external closing signal, an external opening signal or by pushing the left operating button at the control unit. **Closing behaviour** ■ Programme modes 1 or 2: If a safety loop is installed, the barrier closes only after a vehicle has passed through and a permanent closing signal is pending. If only a safety light barrier is installed, no passage is required. The barrier closes at once when a permanent closing signal is applied. ■ Programme modes 3 to 8: If a safety loop is installed, the barrier closes only after the first vehicle has driven through. If only a safety light barrier is installed, the barrier closes at once when the voltage returns.
6	**Reference run** In this option, the barrier boom stops initially. **Release signal** For a release signal must be applied for the barrier to carry out a reference run. Release takes place by pushing the left operating button at the control unit. **Closing behaviour** ■ Programme modes 1 or 2: The barrier closes at once when a permanent closing signal is applied. ■ Programme modes 3 to 8: The barrier closes at once after the barrier reference run.

Operating view → Main menu → Setup → Start-up behaviour	
Option	**Description**
7	**Reference run** In this option, the barrier initially performs a reference run. This means that the barrier opens at low speed. **Release signal** No release signal is required to close the boom. **Closing behaviour** ■ Programme modes 1 or 2: The barrier closes at once when a permanent closing signal is applied. ■ Programme modes 3 to 8: If a safety loop is installed, the barrier closes only after the first vehicle has driven through or after closing. If only a safety light barrier is installed, the barrier closes at once when the voltage returns.  **WARNING!** **Danger of injury from closing boom!** ■ Sight contact to the barrier is required when the voltage is switched on again. ■ No vehicles and persons must stand below the barrier when the closing signal is given.
8	**Reference run** In this option, the barrier initially performs a reference run. This means that the barrier opens at low speed. **Release signal** No release signal is required to close the boom. **Closing behaviour** ■ Programme modes 1 or 2: The barrier closes at once when a permanent closing signal is applied. ■ Programme modes 3 to 8: Barrier closes at once.  **WARNING!** **Danger of injury from closing boom!** ■ Sight contact to the barrier is required when the voltage is switched on again. ■ No vehicles and persons must stand below the barrier when the closing signal is given.

Table 25: Menu "Start-up behaviour", parameter "Start-up settings"

3.15.8 Power failure

Operating view → Main menu → Setup → Power failure	
Parameters	**Description**
Power failure	This parameter sets whether the barrier boom opens at power outage or opens or closes depending on the barrier boom position. The balancing springs must be set according to the selected option. → See operating instructions of the barrier, chapter "Check and set the balancing springs in the lever system". **Options** ■ Unlocked With this option, the lever system of the closed barrier is unlocked; the barrier remains closed. The boom can be opened manually. If the boom angle is less than approx. 30°, the boom will close. If the barrier boom is above an angle of approx. 35°, the barrier boom opens. The balancing springs in the lever system must be set accordingly. ■ Open This option is only possible for the barrier types Access, Access Pro, Parking, Parking Pro, Toll and Toll Pro with a locking width of up to 3.5 metres. In this option, the barrier boom opens at power outage. The barrier boom is moved to the locked end position with the present residual energy of the mains unit and completely opened by the balancing springs of the lever system. The balancing springs must be set correctly and the barrier boom must not be kept in the closed position by external influence. ■ Locked For this option, the barrier boom behaviour depends on the barrier boom position at power outage. When the barrier is closed, it remains closed and the lever system remains locked. Manual opening of the barrier is not possible or requires considerable application of force. If the barrier boom is below an angle of approx. 30°, the barrier boom closes. If the barrier boom is above an angle of approx. 35°, the barrier boom opens. The balancing springs in the lever system must be set accordingly. **Factory setting** ■ Unlocked

Table 26: Menu "Power failure"

3.16 Menu "In-/Outputs"

3.16.1 Inputs

→ Refer to page 7, chapter 2.1 "Digital inputs".

3.16.2 Outputs

→ Refer to page 11, chapter 2.2 "Digital outputs and output relays".

3.17 Menu "Special functions"

3.17.1 Closure by light barrier

Operating view → Main menu → Special functions → Closure by light barrier	
Parameters	**Description**
Closure by light barrier	Use this parameter to select the closing behaviour for barriers with only one safety light barrier installed. If a safety loop is installed, the barrier closes only after the first vehicle has driven through in the automatic programme modes 5 to 8. If only a safety light barrier is installed, the barrier will not close automatically after the first vehicle has driven through in the automatic programme modes 5 to 8. **Options** ■ Deactivated [...] In programme modes 5 and 6, the barrier only closes if either a closing signal is applied or the hold-open time has passed. In programme modes 7 and 8, the barrier only closes when a closing signal is applied. ■ Activated [X] In programme modes 5 to 8, the barrier closes at once when a vehicle drives through the safety light barrier and after passage of the set time for the parameter "Light barrier delay". → Refer to page 42, chapter 3.15.2. **Factory setting** ■ Deactivated [...]

Table 27: Menu "Closure by light barrier"

3.17.2 Closure by additional safety

Operating view → Main menu → Special functions → Closure by additional safety	
Parameters	**Description**
Closure by add. safety (Closure by additional safety)	This parameter is only displayed if the input function "Additional safety device" was assigned to an input. **Options** ■ Deactivated [...] The barrier remains open after clearing of the additional safety device. ■ Active [X] The barrier closes after clearing of the additional safety device. **Factory setting** ■ Deactivated [...]

Table 28: Menu " Closure by additional safety"

3.17.3 Stop at tailgating

Operating view → Main menu → Special functions → Stop at tailgating	
Parameters	**Description**
Stop at tailgating	This parameter is only available for the series "Parking". **Options** ■ Deactivated [...] If the safety loop is driven on above the cut-off angle for the parameter "Safety loop close" during closing, the barrier boom opens. When the safety loop is cleared, cloying is continued. ■ Active [X] If the safety loop is driven on above the cut-off angle for the parameter "Safety loop close" during closing, the barrier boom stops. When the safety loop is cleared, cloying is continued. → Also refer to page 44, chapter 3.15.3 Menu "Cut off angle" **Factory setting** ■ Deactivated [...]

Table 29: Menu:"Stop at tailgating"

3.17.4 Master/Slave

Operating view → Main menu → Special functions → Master/Slave	
Parameters	**Description**
Master/Slave	Activate and deactivate "Parallel operation" function. By activating the master/slave function, the corresponding inputs and outputs are switched automatically. → See separate instructions for information on parallel operation. **Options** ■ Deactivated [...] ■ Activated [X] **Factory setting** ■ Deactivated [...]

Table 30: Menu "Master/Slave"

3.18 Menu "Attachments"

3.18.1 Signal light

The parameters "Signal Mode A", "Signal Mode B" and "Signal Mode C" can be used to parameterise the function for the outputs "Signal light A", "Signal light B" and "Signal light C". → Refer to page 12, chapter 2.2.

You can connect three signal lights.

If you want to control light strips via the MAGNETIC control unit, you need to select the "Illumination strip red" option for "Signal Mode A" and "Illumination strip green" for "Signal Mode B".

Operating view → Main menu → Attachments → Signal light	
Parameters	**Description**
Signal mode A (continued on next page)	Select function for output "Signal light A". The parameter "lead time" can be used to parameterise the warning lamp so that it already lights up red or flashes before closing. The lead time is the time between the closing signal and commencement of the closing procedure. **Options** ■ Traffic light (permanent signal for red/green signal lights): ■ Barrier closed: Traffic light red ■ Barrier opens: Traffic light red ■ Barrier open (upper end position): Traffic light off ■ Barrier closes (without lead time)/ closing time (with lead time): Traffic light red ■ Warning signal (connection of a visual or acoustic signal/ permanent signal before and during closing of the barrier): ■ Barrier closed: Warning signal off ■ Barrier opens: Warning signal off ■ Barrier open (upper end position): Warning signal off ■ Barrier closes (without lead time)/ closing time (with lead time): Warning signal red ■ Flashing light (flashing light connection/ flashing signal while the barrier opens or closes): ■ Barrier closed: Flashing light off ■ Barrier opens: Flashing light flashes at 2 Hz ■ Barrier open (upper end position): Flashing light off ■ Barrier closes (without lead time)/ closing time (with lead time): Flashing light flashes at 2 Hz ■ Boom illumination (boom illumination connection/ permanent flashing signal except when the barrier is open): ■ Barrier closed: Illumination flashes at 2 Hz ■ Barrier opens: Illumination flashes at 2 Hz ■ Barrier open (upper end position): Illumination off ■ Barrier closes (without lead time)/ closing time (with lead time): Illumination flashes at 2 Hz

Operating view → Main menu → Attachments → Signal light	
Parameters	**Description**
Signal mode A (continued)	■ Illumination strip red / Boom illumination / Flashing light ■ Barrier closed (lower end position): Red, permanent light ■ Barrier opens: Red flashes at 2 Hz ■ Barrier open (upper end position): Red off ■ Barrier closes (without lead time)/ closing time (with lead time): Red flashes at 2 Hz **Factory setting** ■ Illumination strip red
Signal mode B	Select function for output "Signal light B". **Options** → For the options "Traffic light", "Warning signal", "Flashing lights", "Boom illumination", see parameters "Signal mode A". ■ Illumination strip green ■ Barrier closed (lower end position): Green off ■ Barrier opens: Green off ■ Barrier open (upper end position): Green, permanent light ■ Barrier closes (without lead time)/ closing time (with lead time): Green off **Factory setting** ■ Illumination strip green
Signal mode C	Select function for output "Signal light C". **Options** ■ Traffic light (permanent signal for red/green signal lights): ■ Barrier closed: Traffic light red ■ Barrier opens: Traffic light red ■ Barrier open (upper end position): Traffic light off ■ Barrier closes (without lead time)/ closing time (with lead time): Traffic light red ■ Warning signal (connection of a visual or acoustic signal/ permanent signal before and during closing of the barrier): ■ Barrier closed: Warning signal off ■ Barrier opens: Warning signal off ■ Barrier open (upper end position): Warning signal off ■ Barrier closes (without lead time)/ closing time (with lead time): Warning signal red **Factory setting** ■ Warning signal

Operating view → Main menu → Attachments → Signal light	
Parameters	**Description**
Lead time	In some application cases, it is required for reasons of safety that a warning signal for the following traffic lights up after before closing of the barrier. This warning signal must light up before the barrier closes. The warning signal is switched on with the closing signal and the lead time is started. The barrier closes only after the end of the set lead time. 0 sWith this parameter, you can also set the "Closing delay" in the "Delay" menu to the same menu. → Refer to page 42, chapter 3.15.2. **Setting range** ■ 0 to 15 s **Factory setting** ■ 0 s
Start event	Select the start event from when on the signal lights should switch. **Options** ■ Closing signal ■ Safety loop active The option "Safety loop active" is only sensible for the automatic programme modes 5 to 8. If an opening signal is pending, the signal lamps are not switched. **Factory setting** ■ Closing signal

Table 31: Menu "Signal light"

3.18.2 Boom contact settings

The barrier can optionally be equipped with a boom contact in the flange. In the "Toll" series, the boom contact is integrated by default and performed as a "Swing Away" or "Auto Swing Away".

Operating view → Main menu → Attachments → Boom contact settings	
Parameters	**Description**
Enabled/disabled	The barrier can optionally be equipped with a boom contact in the flange. The parameter "Enabled/disabled" is used to select the behaviour of the input function "Boom contact input" and the output function "Boom contact feedback". The functions must be selected. → Refer to page 9, chapter 2.1 and page 12, chapter 2.2. **Options** ■ Inactive "Boom contact" is deactivated. The input "Boom contact input" has no function in this option. The output with the function "Boom contact feedback" is deactivated once the boom contact triggers ■ Active "Boom contact" is activated. While the barrier boom is in the flange, 24 V DC are pending at the input with the function "Boom contact input". If the barrier boom is moved from its position, the +24 V DC are removed from the "Boom contact input" input. The barrier moves to the "Open" position. The output with the unction "Boom contact feedback" is deactivated once the boom contact triggers. **Factory setting** ■ Inactive
Automatic closing	Select signal for closing of the barrier boom after boom release. **Options** ■ Automatic The barrier boom automatically closes after the end of the delay time. ■ Signal For the barrier boom to close, a signal must be applied to the input with the function "Close" or "Close low priority". **Factory setting** ■ Automatic

Operating view → Main menu → Attachments → Boom contact settings	
Parameters	**Description**
Closing delay	The parameters are only relevant in the following cases: ■ The barrier is a "Swing Away" or "Auto Swing Away" design. ■ In the "Automatic closing" parameter, the option is set to "Automatic". If a car drives against a "Swing Away" barrier boom, it snaps from the flange. In the "Swing Away" version, the barrier boom must be returned to the flange manually. In the "Auto Swing Away" version, the barrier boom automatically moves into the "open" position. When the position is reached, the barrier boom is locked in the flange by springs. After the barrier boom has caught again, the barrier closes after the time set here. **Setting range** ■ 0 to 10 s **Factory setting** 10 s

Table 32: Menu "Boom contact settings"

3.18.3 Boom locking

The barrier can optionally be equipped with an electro-mechanical boom lock at the end of the barrier boom. When the barrier is closed, the boom locking is activated via the output function "Boom locking". If a signal is present for opening, the boom lock is released first. → Refer also to page 12, Output function "Boom locking".

Operating view → Main menu → Attachments → Boom locking	
Parameters	**Description**
Boom locking	Indicates whether a boom lock is present. **Options** ■ Without boom locking No boom locking present. ■ With boom locking Boom locking present. **Factory setting** ■ Without boom locking

Table 33: Menu "Boom locking"

3.18.4 Battery backup

The menu "Battery backup" is used to set the opening and closing speed of the barrier boom during battery operation. The setting affects the battery life.

For standard operation, set the opening and closing speed of the barrier boom in the menu "Barrier speed". → Refer to page 42, chapter 3.15.1.

Operating view → Main menu → Attachments → Battery backup	
Parameters	**Description**
Battery backup	Select opening and closing speed of the barrier boom. **Options** ■ Normal speed: The opening and closing speed corresponds to the setting in the menu "Speed". ■ Slowly after 200 cycles: The opening and closing speed is reduced to level "Slow" after 200 cycles. ■ Slow down directly: The opening and closing speed is reduced to the level "Slow" at once after switching to battery operation. **Factory setting** ■ Normal speed

Table 34: Menu "Battery backup"

3.19 Menu "Service"

This menu is only intended for MAGNETIC's service and only accessible with a password.

Operating view → Main menu → Service	
Parameters	**Description**
Cycles	Display of the complete closing and opening processes
Operation	Display operating hours counter. The operating hours counter records the time, during which the barrier is live.
System time	Displays the internal date and the internal clock
Main menu password	Activate and deactivate password protection for the main menu To activate a change of the settings, either call the operating view or switch the voltage supply on or off. **Options** ■ Inactive You can change the main menu without entering a password. ■ Active You can change the main menu only after entering a password. The password is identical with the one for the menu "Service". **Factory setting** ■ Inactive

Table 35: Menu "Service"

3.20 Menu "System"

Operating view → Main menu → System	
Parameters	**Description**
Language	Select menu language. **Options** ■ German ■ English ■ French ■ Spanish ■ Italian ■ Portuguese ■ Swedish ■ Finnish ■ Norwegian ■ Danish ■ Estonian ■ Dutch **Factory setting** ■ English
Date/time	Correct date and time of the control unit MGC.

Table 36: Menu "System"

3.21 Menu "Information"

Operating view → Main menu → Information	
Parameters	**Description**
Serial no.	Displays the serial number of the control unit
Hardware version	Displays the present hardware version
Software #	Display of the present software number
SW version	Displays the present software version
Temperature	Displays the current temperature in the control unit

Table 37: Menu "Information"

3.22 Menu "Motor GW (Gateway)

Operating view → Main menu → Motor GW (Gateway)	
Parameters	**Description**
Software #	Displays the present software number
SW version	Displays the present software version
Motor temperature	Display of the current motor temperature
Motor-SW	Display of the present motor software

Table 38: Menu "Motor GW (Gateway)"

3.23 Menu "Detector 1 (A-B)"

This menu is used to reference the induction loops A and B.

Operating view → Main menu → Detector 1 (A-B)	
Parameters	**Description**
Recalibration	Start reference of the induction loops (activate)
Mode A	Select position and function of loop A. **Options** ■ Inactive Induction loop is not present or not relevant for evaluation. ■ Active The induction loop state is put on the output with function "Loop active". Internally, the induction loop condition is not used. ■ Safety loop The induction loop assumes the function of the safety loop. ■ Opening entry The induction loop assumes the function of the opening loop on the entry lane. ■ Open exit The induction loop assumes the function of the opening loop on the exit lane. ■ Presence entry The induction loop assumes the function of the presence loop on the entry lane. ■ Presence exit The induction loop assumes the function of the presence loop on the exit lane.
Mode B	Select position and function of loop B. ■ → For description, see parameter "Mode A".
Sensitivity A	Set the response sensitivity of the induction loop A. The response sensitivity is divided into increments. **Factory setting** ■ 5 **Setting range** ■ 0…9

Operating view → Main menu → Detector 1 (A-B)	
Parameters	**Description**
Sensitivity B	Set the response sensitivity of the induction loop B. → For description, see parameter "Sensitivity A".
Frequency setting	→Refer to page 66, Table 40.
Information	Displays information about the plug-in module "Detector 1 (A–B). Here, the serial number (SerNo), hardware version, software # and software version and of the plug-in module are displayed.

Table 39: Menu "Detector 1 (A-B)"

Operating view → Main menu → Detector 1 (A-B) → Frequency settings	
Parameters	**Description**
Freq. A	Displays the currently measured frequency for induction loop A
Freq. B	Displays the currently measured frequency for induction loop B
Frequ. Shift	Interference influences, e.g. from external loop detectors or induction loops of barriers close by can influence the frequency of loops A and B. Use the parameter "Freq. Shift" to change the frequency values for loops A (channel A) and B (channel B) by approx. 10 % and thus reduce the influence of loops A and B. **Options for channels A and B.** ■ High: high frequency value ■ Low: low frequency value
Ref value A	Displays the reference frequency for induction loop A
Ref value B	Displays the reference frequency for induction loop B

Table 40: Menu "Frequency settings"

3.23.1 Check the working frequency of the induction loops.

1. The operating view is displayed. → See page 24, Fig. 15.
2. Press the left control button i repeatedly, until the menu "Detector 1 (A-B)" is displayed.

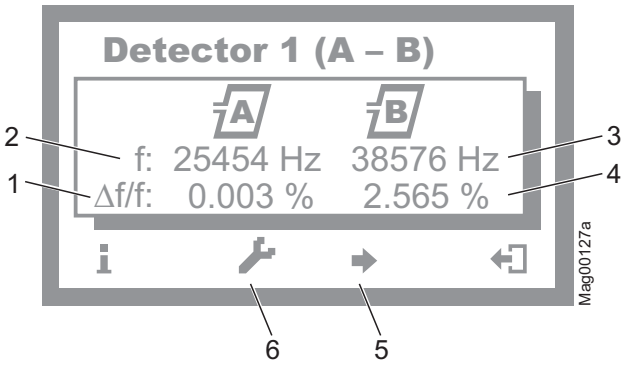


Fig. 22: Example "View – Menu Detector 1 (A-B)"

1 Relative frequency of induction loop A
2 Currently measured frequency of induction loop A
3 Currently measured frequency of induction loop B
4 Relative frequency of induction loop B
5 If another optional detector module is present: Switching between the two detector modules
6 Recalibration of the induction loop

3. Use the right button to leave the "Detector 1 (A-B)" menu. The operating view is displayed.

3.23.2 Reconciling and setting the operating frequency of the induction loop

Operating frequency requirements

The operating frequency must fulfil following requirements:

- When driving over the induction loop with a vehicle, a significant frequency increase must be measurable. Chose stage 5 or 6 for sensitivity. The relative frequency change (Δf/f) must be at least 0.1%. The higher the relative frequency increase, the higher the operating safety of the induction loop.
- The induction loops of a control unit operate alternating, and can therefore not affect each other.
  However, to avoid interferences by frequency coupling from external loop detectors or other control units in the direct proximity, a frequency clearance of at least 10000 Hz must be kept between them. For this, the menu "Freq. Shift" is used to set the frequency option to "Low" or "High", or to deactivate or adjust the induction loop windings number.

Reference working frequency via the menu "Information" (i)

1. The operating view is displayed. → See page 24, Fig. 15.
2. Press left operating button i.
3. Press the left control button repeatedly, until the menu "Detector 1 (A-B)" is displayed. → See page 67, Fig. 22.
4. Press second operating button from the left.
5. The barrier is referenced. The loop symbols flash during re-conciliation.
6. Check working frequencies. If required, perform settings like sensitivity, etc. in the menu "Detector 1 (A-B)" in the main menu.
7. Perform one of the following steps:
   - For a "Detector" plug-in module: Use the right button to leave the "Detector 1 (A-B)" menu. The operating view is displayed.
   - For two "Detector" plug-in modules: Press the third operating button from the left. The "Detector 2 (C-D)" menu is displayed.
8. The barrier is referenced. The loop symbols flash during reconciliation.
9. Check working frequencies. If required, perform settings like sensitivity, etc. in the menu "Detector 2 (C-D)" in the main menu.
10. Use the right button to leave the "Detector 2 (C-D)" menu. The operating view is displayed.

Frequency value of the un-assigned induction loop unstable

If the frequency value of an induction loop is unstable, this induction loop is influenced by an induction loop of another barrier or an external detector. The detector channels do not influence each other.

Depending on the loop geometry and settings of the external detector, set the menu "Freq. Shift" to "Low" or "High".

1. The operating view is displayed. → See page 24, Fig. 15.
2. Press right operating button .
3. The "Main menu" menu is displayed.
4. Select the menu "Detector 1 (A-B)" with the two middle buttons , .
5. Confirm selection with the right control button .
6. The "Detector 1 (A-B)" menu is displayed.
7. Select the menu "Frequency settings" with the two middle buttons , .
8. Confirm selection with the right control button .
9. The "Frequency settings" menu is displayed.
10. Select the menu "Freq. Shift" with the two middle buttons , .
11. Confirm selection with the right control button .
12. The "Freq. Shift" menu is displayed.
13. Select the parameter "Channel A" or "Channel B" with the two middle buttons , .
14. Confirm selection with the right control button .
15. The corresponding menu is displayed.
16. Select the option "Low" or "High" for the respective channel with the two middle buttons , .
17. Use the right button to select the option. Your selection is marked with the symbol .
18. Use the left button to leave the menu.
19. The safety prompt "Save changes?" appears.
    - If the changes are to be saved, press the right button .
    - If the changes are not to be saved, press the left button .
20. Press the left button repeatedly until the operating view is displayed again.
21. Test the operating frequencies.

For another plug-in module, the menu "Detector 2 (C-D)" is displayed in the main menu. Reconciliation is performed for the induction loops A and B.

3.24 Menu "Detector 2 (C-D)"

This menu is displayed if a second plug-in module with the function "Detector" was plugged into the control unit. This menu is used to reference the induction loops C and D.

The menu "Detector 2 (C-D)" corresponds to the menu "Detector 1 (A-D)". → Refer to page 65, chapter 3.23.

3.25 Menu "Radio control FM"

The "Radio control FM " menu is displayed when the "Radio" plug-in module is plugged into one of the control device slots.

The hand transmitters are available as 1-, 2- and 4-channel versions.

Each channel (button) can be assigned a function.
→ See page 71, parameter "Teach in remote control". e.g. you can open or close 4 barriers or open and close 2 barriers with a 4-cannel version.

If you want to open and close a barrier via the hand transmitter, you have to assign the functions to the buttons row by row. Up to two functions per barrier can be taught in.

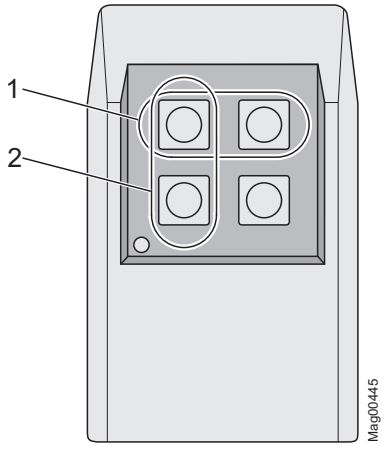


Fig. 23: 4-channel hand transmitter

1 Row
2 Column

If you want to operate the barrier via hand transmitter, programme mode 3 to 8 must be selected.

The barrier is opened or closed by pressing the button on the hand transmitter. After pressing the button on the hand transmitter, the hand transmitter number is indicated in the display.

A radio module can manage up to 100 hand transmitters using different codes.

Operating view → Main menu → Radio control FM	
Parameters	**Description**
Number of transmitters	Display of number of hand transmitters with which the barrier can be opened
Teach in remote control	Use this parameter to pair a hand transmitter with the radio module. **Options** ■ Open high priority The button is assigned to the function "Open high priority". ■ Opening The button is assigned to the function "Open". ■ Closing The button is assigned to the function "Close".
Delete remote control	Use this parameter to revoke a pairing between a hand transmitter and the radio module. **Options** ■ With remote control Dissolve pairing by pressing a button on the hand transmitter. ■ With number Dissolve pairing by entering the hand transmitter number. ■ Delete ALL Delete all hand transmitters. Password input is required for this.
Information	Displays information about the plug-in module "Radio". Here, the hardware version, software version and serial number (SerNo) of the plug-in module are displayed.

Table 41: Menu "Radio control FM"

Set hand transmitter code

The hand transmitter code is set via DIP switches in the hand transmitter. We recommend changing the DIP switches' standard settings.

1. Open hand transmitter housing. For this, press the coloured pressure point while pulling up the upper housing part at the same time.
2. Change and document the DIP switches' settings.

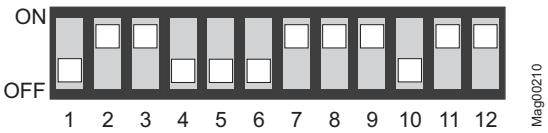


Fig. 24: Example DIP switches settings

3. Close housing.

Parameterising control unit

Teach in remote control example option "Close"

1. The operating view is displayed. → See page 24, Fig. 15.
2. Press right operating button .
3. The "Main menu" menu is displayed.
4. Select the menu "Radio control" with the two middle buttons , .
5. Confirm selection with the right control button .
6. Select the parameter "Teach in remote control" with the two middle buttons , .
7. Confirm selection with the right control button .
8. Select the parameter "Close" with the two middle buttons , .
9. The message "Press button" appears.
10. Press the button on the hand transmitter. For the 2-channel hand transmitter, the corresponding channel is paired with the radio module.
11. The message "Successful" appears on the display. The number for the parameter "Number of transmitter" is increased by one.
12. Press the left button repeatedly until the operating view is displayed again.

Delete remote control

1. The operating view is displayed. → See page 24, Fig. 15.
2. Press right operating button .
3. The "Main menu" menu is displayed.
4. Select the menu "Radio control" with the two middle buttons , .
5. Confirm selection with the right control button .
6. Select the parameter "delete remote control" with the two middle buttons , .
7. Confirm selection with the right control button .
8. The options "with remote control" and "with number" are displayed.
9. Select an option with the two middle buttons , .
10. Confirm selection with the right control button .

Option "With remote control"

The option "'With remote control" was selected

1. The message "Press button" appears.
2. Press the button on the hand transmitter.
3. The message "Successful" appears. The number for the parameter "Number transmitter" is decreased by one.
4. Press the left button repeatedly until the operating view is displayed again.

Option "With number"

The option "with number" was selected

1. Enter hand transmitter number.
2. Use the left button to leave the menu.
3. The safety prompt "Save changes?" appears.
   - If the hand transmitter is to be deleted, press the right button ✓.
   - If the hand transmitter is not to be deleted, press the left button ✗.
4. The "Delete remote control" menu is displayed.
5. Press the left button repeatedly until the operating view is displayed again.

Option "Delete ALL"

The option "Delete ALL" was selected

1. Enter the service password.
2. Confirm input with the right control button ✓.
3. The message "Successful" appears. All hand transmitters were deleted.

NOTE!

If a hand transmitter is deleted, the memory slot used is released. The sequence does not change by deletion. Teaching in new hand transmitters will first fill the gaps and only then continue numbering.

3.26 Factory settings

NOTE!

The parameters of the control unit are stored in the three memory areas "FW defaults", "Factory settings" and "User parameters".

The FW defaults are identical to the factory settings in these operating instructions. The FW defaults are firmly store din the firmware and cannot be changed.

The factory setting can be assigned factory- or product-specific settings.

The user settings are the operating parameters.

Parameterising control unit

Options in the menu "Factory settings"

The menu "Factory settings" offers the following options:

- Restore factory settings:
  The stored parameters in the memory area "Factory settings" are assuaged as operating settings.
- User settings as factory settings:
  The current parameter settings are stored as factory settings. These factory settings can be used to receive project-specific settings.
- FW defaults as factory setting:
  The factory setting are overwritten by the FW standard values.

If you would like to assume the FW defaults as operating settings and the factory settings were overwritten first, you need to use the option "FW defaults as factory settings" and then the option "Restore factory settings".

Option "Restore factory settings"

1. The operating view is displayed. → See page 24, Fig. 15.
2. Press right operating button .
3. The "Main menu" menu is displayed.
4. Select the menu "Factory settings" with the two middle buttons , .
5. Confirm selection with the right control button .
6. Enter password "0 0 0 0".
7. Confirm password with the right control button .
8. The message "Reset to factory settings" appears.
9. Press right operating button .
10. The safety prompt "Save changes?" appears.
    - If the changes are to be saved, press the right button . The current settings are reset to factory settings. A restart is performed.
    - If the changes are not to be saved, press the left button .
11. Press the left button repeatedly until the operating view is displayed again.

Via Service Password – Option "Restore factory settings", "User settings as factory settings" or "FW standard values as factory settings"

1. The operating view is displayed. → See page 24, Fig. 15.
2. Press right operating button .
3. The "Main menu" menu is displayed.
4. Select the menu "Factory settings" with the two middle buttons , .
5. Confirm selection with the right control button .
6. Enter the service password.
7. Confirm password with the right control button .
8. The message "Reset to factory settings" appears.
9. Select the desired option with the two middle buttons , .
10. Confirm selection with the right control button .
11. The safety prompt "Save changes?" appears.
    - If the changes are to be saved, press the right button . The corresponding parameter set is written anew depending on the selected option. A restart is performed.
    - If the changes are not to be saved, press the left button .
12. Press the left button repeatedly until the operating view is displayed again.

4 Menu setup

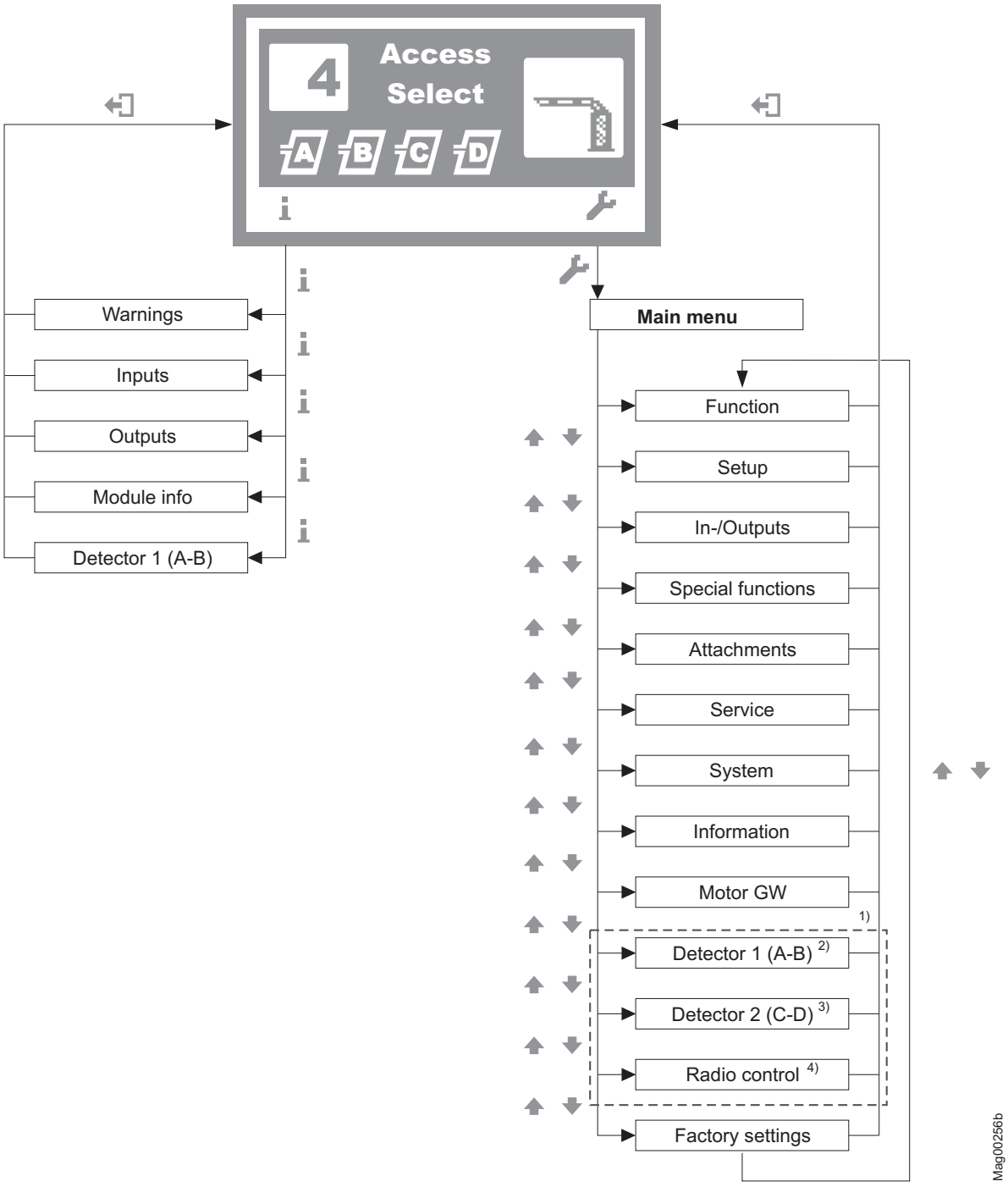


Fig. 25: Menu "Information" and main menu

1 *The view depends on the plugged-in plug-in modules such as "Ethernet" or "RS485/422" and on whether a service module is connected.*
2 *Menu "Detector 1 (A-B)" in the first plug-in module "Detector"*
3 *Menu "Detector 2 (C-D)" only with a second plug-in module "Detector" (optional)*
4 *Menu "Remote control" only with optional plug-in module "Radio"*

Menu setup

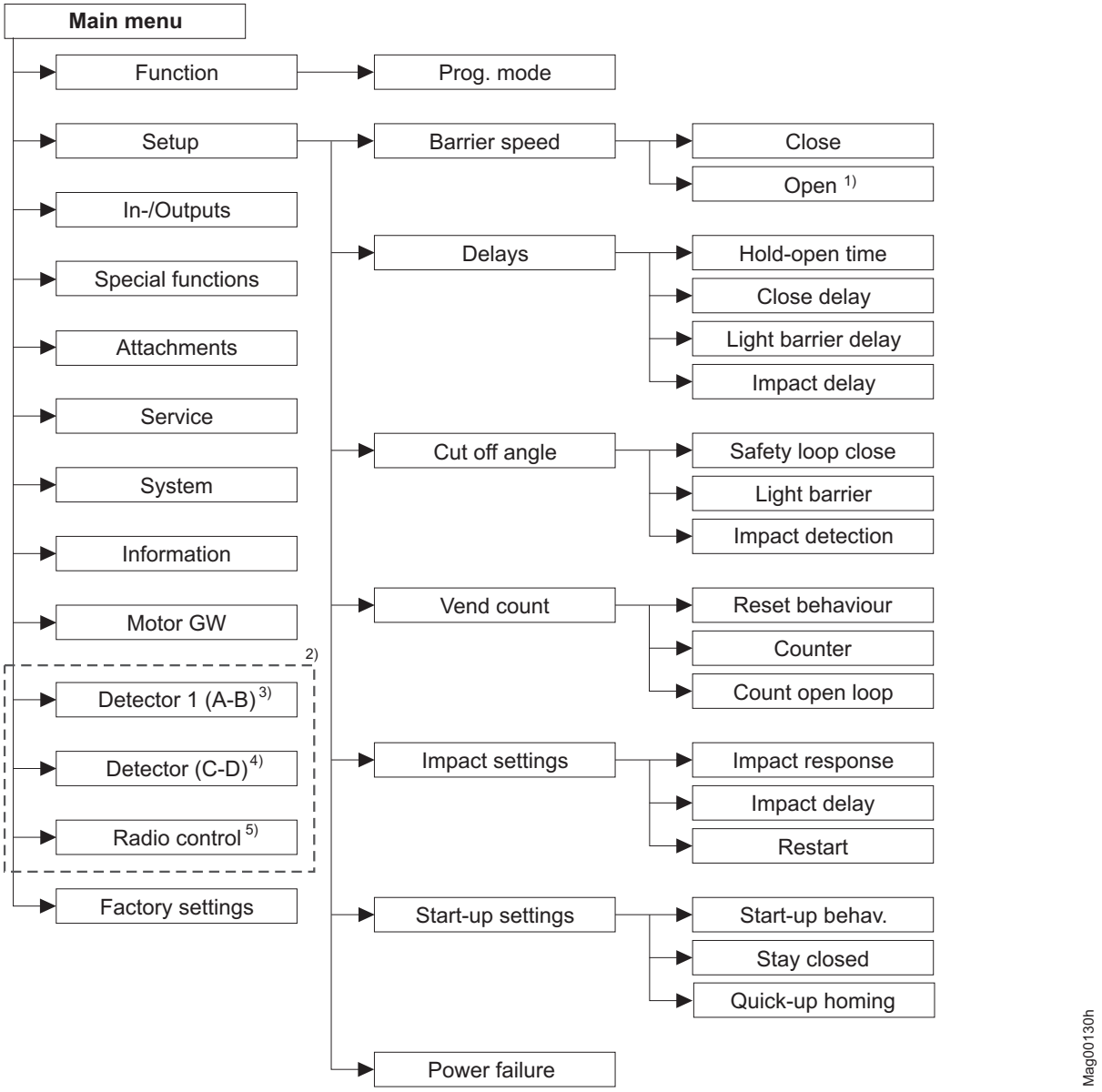


Fig. 26: Main menu – Menu "Function" and "Setup"

1 *The parameter is displayed for barriers with a control unit MGC-Pro.*
2 *The view depends on the plugged-in plug-in modules such as "Ethernet" or "RS485/422" and on whether a service module is connected.*
3 *Menu "Detector 1 (A-B)" in the first plug-in module "Detector"*
4 *Menu "Detector 2 (C-D)" only with a second plug-in module "Detector" (optional)*
5 *Menu "Remote control" only with optional plug-in module "Radio"*

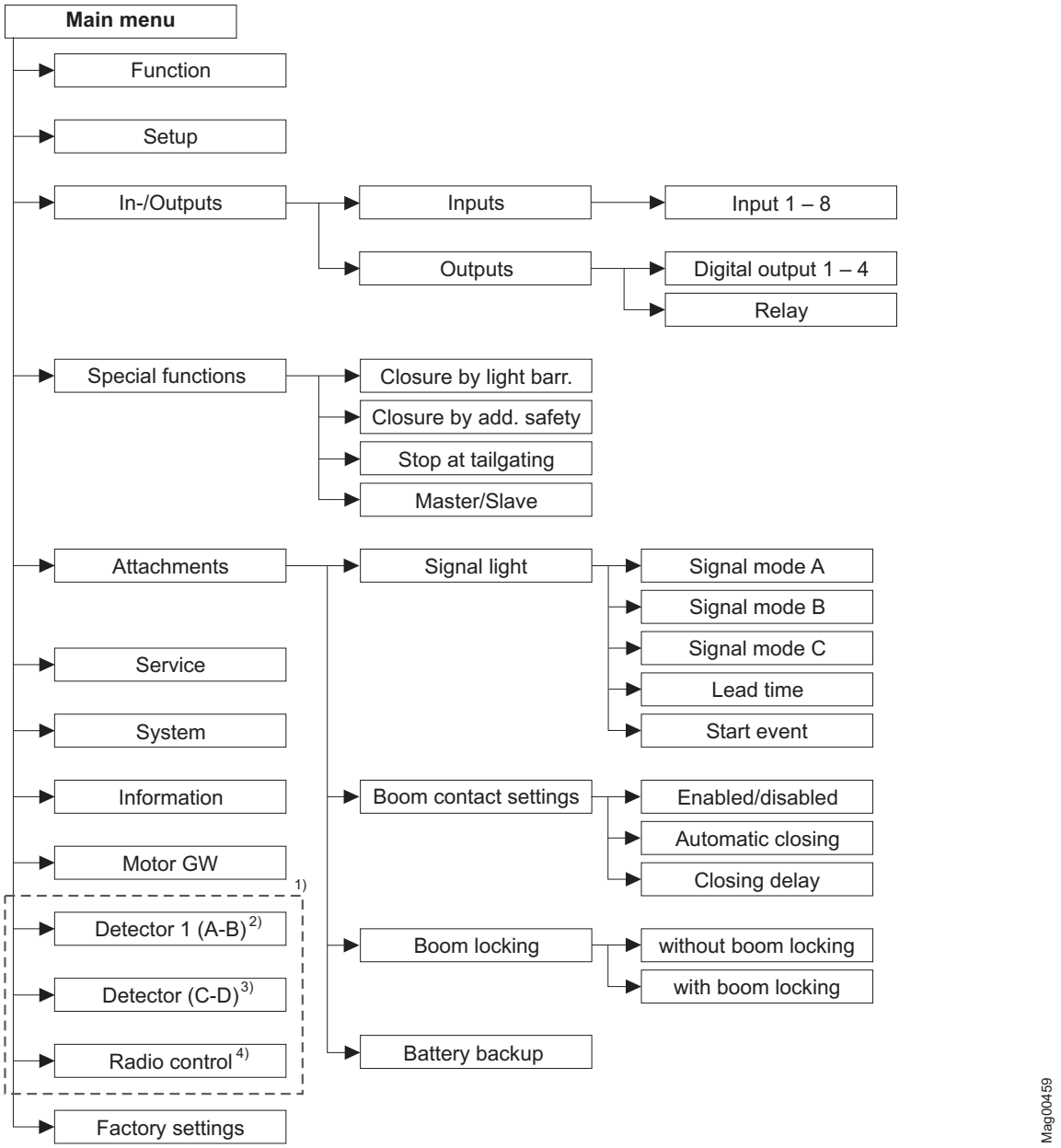


Fig. 27: Main menu – Menus "In-/Outputs", "Special functions" and "Attachments"

1 *The view depends on the plugged-in plug-in modules such as "Ethernet" or "RS485/422" and on whether a service module is connected.*
2 *Menu "Detector 1 (A-B)" in the first plug-in module "Detector"*
3 *Menu "Detector 2 (C-D)" only with a second plug-in module "Detector" (optional)*
4 *Menu "Remote control" only with optional plug-in module "Radio"*

Menu setup

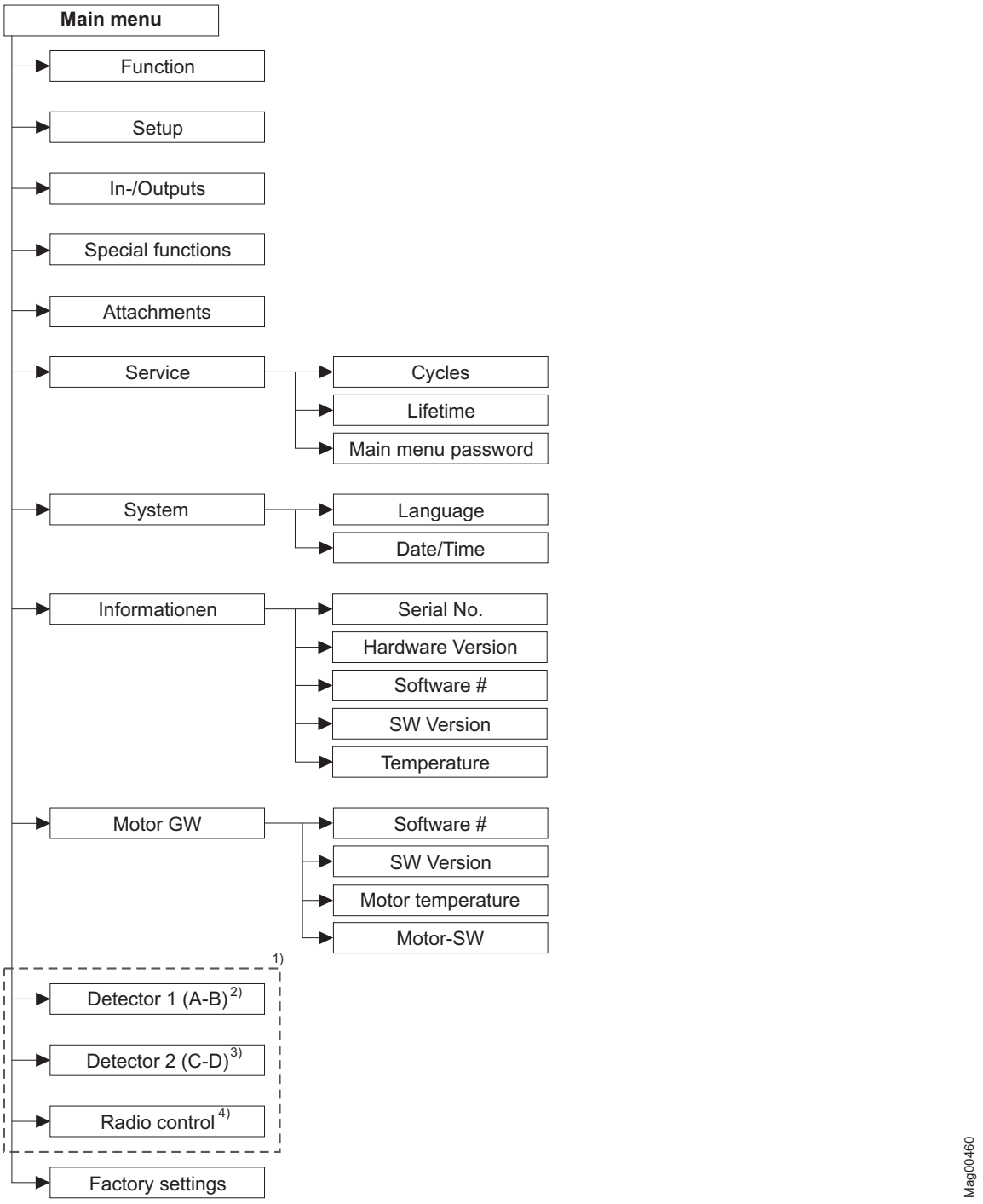


Fig. 28: Main menu – Menus "Service", "System", "Information" and "Motor GW"

1 *The view depends on the plugged-in plug-in modules such as "Ethernet" or "RS485/422" and on whether a service module is connected.*
2 *Menu "Detector 1 (A-B)" in the first plug-in module "Detector"*
3 *Menu "Detector 2 (C-D)" only with a second plug-in module "Detector" (optional)*
4 *Menu "Remote control" only with optional plug-in module "Radio"*

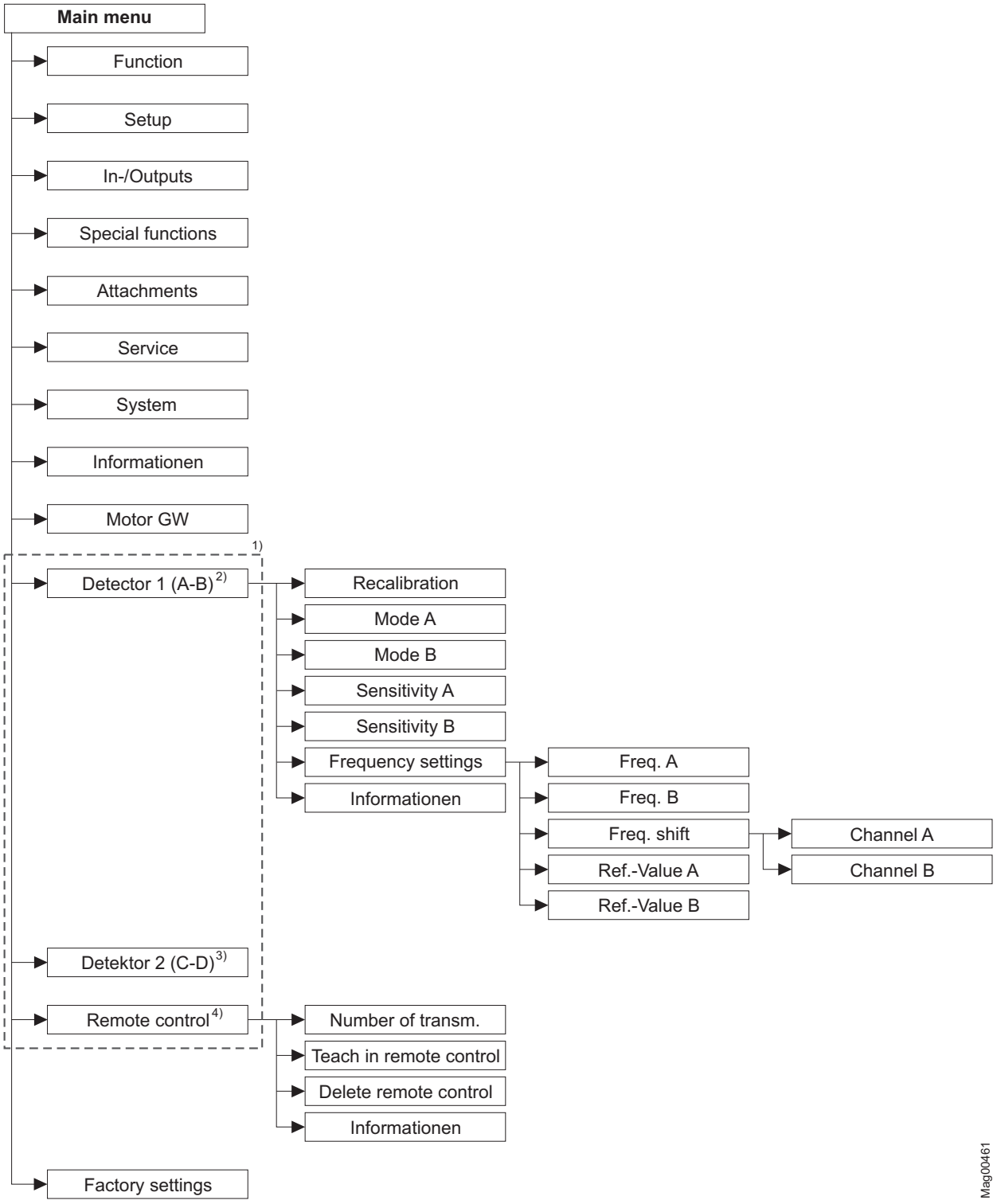


Fig. 29: Main menu – Menus "Detector 1 (A-B)" and "Remote control"

1 *The view depends on the plugged-in plug-in modules such as "Ethernet" or "RS485/422" and on whether a service module is connected.*
2 *Menu "Detector 1 (A-B)" in the first plug-in module "Detector"*
3 *Menu "Detector 2 (C-D)" only with a second plug-in module "Detector" (optional)*
4 *Menu "Radio transmitter" only with optional plug-in module "Radio"*

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