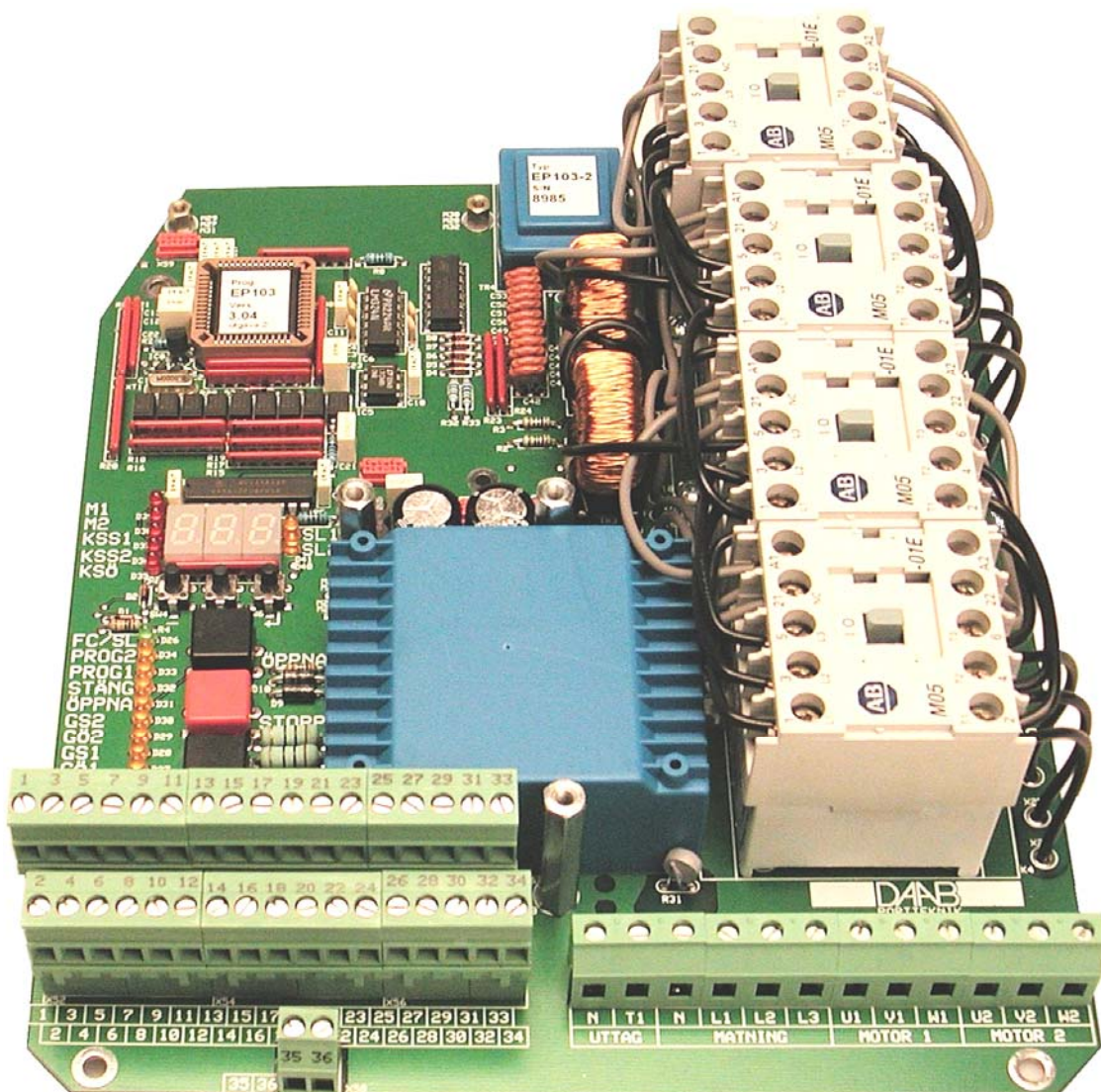


Automatic Control Panel, Type EP103

For electrically operated doors, gates and barriers

Instructions for use

Version 3.13
Edition 1
Art no 006060



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Order of instructions for use

It is necessary to read through the instructions for use in order to install and connect the automatic control devices correctly.

Commissioning the road barrier, pages 17 – 18, 19 - 24

Commissioning the gate (hinged gate, sliding gate), pages 17 – 18, 25 - 33

Commissioning the folding door (hinged door, sliding door), pages 17 – 18, 34 - 43

Commissioning the sectional overhead door, pages 17 – 18, 44 - 53

Descriptions and pictures in these instructions for use are not binding. DAAB Portteknik reserves the right to change the products at any time. These changes may be made without updating these instructions for use.

General

Declaration of conformity

According to AFS 1994:48, Attachment 2 A,

Manufacturer: DAAB Portteknik AB
Box 125
284 22 Perstorp
Telephone: +46 (0)435 77 95 00
Fax: +46 (0)435 77 95 29

Declares that:

Product: *Automatic control panel type EP103-1, EP103-2 for doors is manufactured according to the following harmonised standards:*

The National Board of Occupational Safety and Health announcement AFS 1994:48(which refers to EU:s directive 98/37/EEC)

- EN 12453:2000 "Industrial, commercial and garage doors and gates - Safety in use of power operated doors – Requirements"
- EN 12978:2003 "Industrial, commercial and garage doors and gates - Safety devices for power operated doors and gates - Requirements and test methods"

Low voltage directive (LVD) 73/23/EEC

- EN 60204-1 "Machine safety – Electrical equipment of machines, general requirements"

The directive for electromagnetic compatibility (EMC) 89/336/EEC with revisions 92/31/EEC and 93/68/EEC.

- EN 61000-6-3 "Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – Emissions from equipment in residential, office, commercial and similar environments".
- EN-55014-1 "Radio disturbances – Radio disturbances from electrical household appliances, electric tools and similar apparatus. - Limit values and methods of measurement".
- EN 55022 "Equipment for management of information – Radio disturbances – Limit values and methods of measurement".
- EN 61000-3-2 "Electromagnetic compatibility (EMC) – Part 3: Limit values – Limits for harmonic frequencies caused by apparatus with an input current of a maximum 16 A per phase".
- EN 61000-3-3 "Electromagnetic compatibility (EMC) – Part 3: Limit values – Limitations to the electric voltage distribution system caused by apparatus with a ground current of maximum 16 A".

- EN 61000-6-2 "Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity of equipment in industrial environments".
- EN 61000-4-2 "Electromagnetic compatibility (EMC) – Part 4: Measurement and testing techniques – Electrostatic discharge immunity test".
- EN 61000-4-3 "Electromagnetic compatibility (EMC) – Part 4: Measurement and testing techniques – Radiated, radio-frequent electromagnetic field immunity test".
- EN 61000-4-4 "Electromagnetic compatibility (EMC) – Part 4: Measurement and testing techniques – Electric fast/burst transient immunity test".
- EN 61000-4-5 "Electromagnetic compatibility (EMC) – Part 4: Measurement and test techniques – Impulse immunity testing".
- EN 61000-4-6 "Electromagnetic compatibility (EMC) – Part 4: Measurement and testing techniques – Immunity to conducted disturbances caused by radio–frequency fields".
- EN 61000-4-8 "Electromagnetic compatibility (EMC) – Part 4-8: Measurement and test techniques – Power frequency magnetic field immunity test".
- EN 61000-4-11 "Electromagnetic compatibility (EMC) – Part 4: Measurement and testing techniques – Voltage dips, short interruptions and voltage variations immunity tests"

Perstorp 2003-04-08



Dan Irwe, VD

General

Safety Instructions

The instructions for use delivered with the control panel should be read through carefully since it contains important information about safety, commissioning and usage. Risk for serious personal injury or material damage can arise if the safety instructions are not followed.



WARNING! Incorrect installation or wrong usage of this product can cause injury to persons, animals or property.

- Connection / inspection should only be carried out by a suitably qualified person. It is always the person who carries out the final adjustment who is responsible for the final product.
- Only professionals may commission.
- The gate / barrier / door can be dangerous if incorrectly connected to the control panel.
- The control panel contains live components when connected to a power supply. Disconnect power supply / battery backup before any work is carried out on the unit.
- Check that the earth lead is correctly connected: all of the metal parts in the gate / barrier construction, and all system components with an earth terminal should be connected to protective earth.
- When handling the control panel, ESD-directives should be followed.
- The unit should be mounted inside a cabinet designed for its surroundings. The cabinet should protect the electronics from damp, dust and risk of contact. If the cabinet is placed outdoors, or is subjected to condensation, a suitable heating element must be employed.
- The electronics should be protected against dampness.
- Packing material should be handled and sorted according to valid rules. Keep plastic bags etc. out of the reach of children.
- Store this manual in a suitable location for future reference.
- The unit is designed solely for the application that is given in this manual. Any operation not expressly specified could damage the unit and cause potentially hazardous gate operation. No guarantees apply for the misuse of this product.
- Assemble all safety components required as protection (photocells, safety buffers, etc.), in accordance with specific directives and technical standards.
- The unit or associated components must not be modified in any way without special permission from the manufacturer.
- The end user may not personally carry out work on or repairs to the unit, these must always be carried out by suitably qualified personnel.
- The installer must inform the end user of the control panel's functions and how the gate / barrier / door can be released (opened manually) during power failure or another emergency situation.
- People, animals and property should be kept clear of the gate / barrier / door at all times.
- Radio transmitters and other remote controls should be kept out of reach of children to avoid unintentional operation of the gate / barrier / door.

Recycling of used electronics

- DAAB Portteknik will accept old DAAB circuit boards for environment friendly recycling free of charge.

'Stop' mechanism

Stop keys, restart of automatic closing

The control panel has an adjustable stop function. The function applies to both the normal stop keys and the stop function in programmable inputs (Open/Stop/Close), channels C61 and C62. As a start value the stop key, after being pressed, does not restart the countdown for automatic closing. If the door is always to close automatically, even when a stop key has been pressed or following voltage loss, a time must be programmed in C52 as well as in C49 or C50.



WARNING! Any remote signal will start the automatic close countdown after a stop signal has been sent. This applies to all normal open and close signals as well as programmable inputs. For example a year timer, radio transmitter, GSM-module or vehicle detector can be connected to these.

For example: If a vehicle drives on an "open loop" of the vehicle detector and then drives off it again, the countdown for the automatic closing time (C50) will restart, regardless of what is programmed in C52, and the door will start closing.

Read more about automatic closing in the chapter for respective door or gate types.

| C52 | Installation of automatic closing following stop signal |
|-----------------------------|--|
| 0 | No automatic closing signal is given by the panel after a 'stop' signal is received, <u>until another command is received.</u> |
| 0,20 - 9,59 (min., sec.) | No Automatic closing signal is given by the panel until the set time has expired or another command is received. |

Work on doors

For safe opening of doors e.g. when working in the vicinity of the door's area of movement, the main power switch for power supply must be switched off. The main power switch is often located close to the control panel cabinet.

General

General description

Intended use

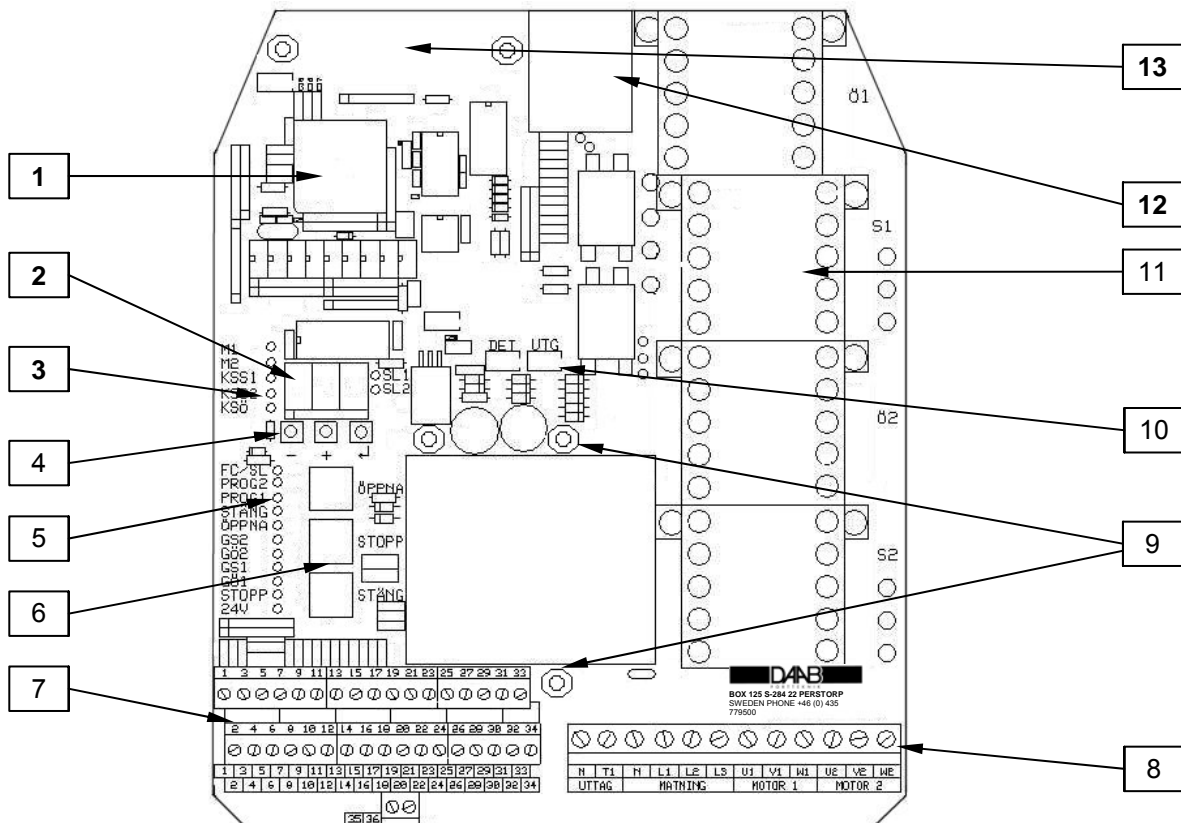
The automatic control device allows the passage of vehicles and people; it starts and stops the motors which drive the doors, gates and barriers. In order for the device to know when to start and stop the motors, there are signals from the remote control, limit positions and safeguards which are connected to the automatic control device.

Description of automatic control panel

EP103 is DAAB's standard automatic panel for controlling folding doors, sectional overhead doors, gates and barriers. EP103 contains that which is required to control up to two electric motors of a door: contactors, motor protection, load sensor, safety buffer monitoring, alarm diodes, internal buttons for test manoeuvring, a display and pushbuttons for programming are built into the circuit board. This control can be delivered with different accessories such as e.g. detector loops, radios, traffic lights and magnetic locks.

Identifying the automatic controls

| No.: | Description |
|------|---|
| 1 | Programme circuit marked with programme version |
| 2 | Display for showing the measured values and settings. |
| 3 | Alarm indications. |
| 4 | Pushbuttons for setting of controlling parameters |
| 5 | Indication of control signals |
| 6 | Pushbuttons for manoeuvring of doors, used for service and commissioning. |
| 7 | Low voltage connection terminal for control signals |
| 8 | High voltage connection terminal for power supply and motors |
| 9 | Spacers for assembly of additional cards |
| 10 | Contact unit for connecting additional cards |
| 11 | Contactors for starting and stopping the electric motor |
| 12 | Marking with model name and series number |
| 13 | Space for accessory card for wireless manoeuvring |



Connection

Technical Specifications

| | |
|--|--|
| Dimensions (wxhxd) | 190 x 224 x 60 mm. |
| Weight | Model type EP103-1 - 1.4 kg. Model type EP103-2 - 1.7 kg. |
| Power supply | EP103 is suitable for 3-phase or 1-phase operation. |
| Power supply, 3-phase | 3 x 400 V + N + PE, 3 x 230 V + PE, ($\pm 10\%$). Max. T10A fuse. |
| Power supply, 1-phase | 1 x 230 V + N + PE, ($\pm 10\%$). Max. T10A fuse. |
| Frequency | 50 Hz. |
| Motor | EP103-1 can control 1 motor; EP103-2 can control 2 motors. |
| Motor for 3-phase operation, 3 x 400 V | 3-phase induction motor 0.18 – 0.75 kW. |
| Motor for 3-phase operation, 3 x 230 V | 3-phase induction motor 0.18 – 0.37 kW. |
| Motor for 1-phase operation | 1-phase motor with operating condenser 0.18 - 0.25 kW. |
| Fuses | External fuse required, max. T10A. |
| Power consumption | Automatic controls max. 22 VA + electric motors. |
| Temperature range | 0 to 50 °C. |
| EMC | |
| Emission: EN 61000-6-3:2001 | En 55022 Rating B, EN 55014-1, EN 61000-3-2, EN61000-3-3. |
| Immunity: EN 61000-6-2:1999 | EN 61000-4-2, En 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11. |
| LVD | EN 60204-1. |
| Safety Buffers | There are 3 analogue inputs for safety buffer monitoring. |
| Closing direction | 2 inputs, KSS1 and KSS2, for safety buffers - close. |
| Opening direction | There is one KSÖ input for safety buffers - open. |
| Sensitivity | There must be >25% differentials when a buffer is actuated. |
| Resistance | 1.0 – 8.2 k Ω with 1 % tolerance and power resistance at least $\frac{1}{2}$ W. |
| Safety circuit | |
| Max. resistance | Max. 3 Ω in stop circuit. |
| Cable length | Cable length: 0.75 mm ² = max 60 m. Cable length: 1.5 mm ² = max. 120 m. |
| Inputs | 1 analogue input 0 – 50 V measures voltage after stop circuit. |
| Motor protection | An internal motor protection measures the current on phase L1. |
| Range of settings | 0.5 – 4 A. |
| Load sensor | Measurement of power consumed. |
| Range of measurement | 0.05 – 1.99 kW. |
| Digital inputs (9) | For manoeuvring and limit positions. |
| Logic 0 | 0 - 8 V DC. |
| Logic 1 | 12 – 30 V DC. |
| Input current | 5 mA at 24 VDC. |
| Cable length | Max. 200 m. |
| Supply to photocell | 24 DC max. 50 mA. |
| 24 V DC output | 24V DC for supply to external access control or signal devices etc. |
| Load | Max. 300 mA. |
| Communication | RS-485 between 2 EP103. Max. cable length 1000 m. |
| Weatherproof rating | The circuit board is intended for assembly inside a casing. |

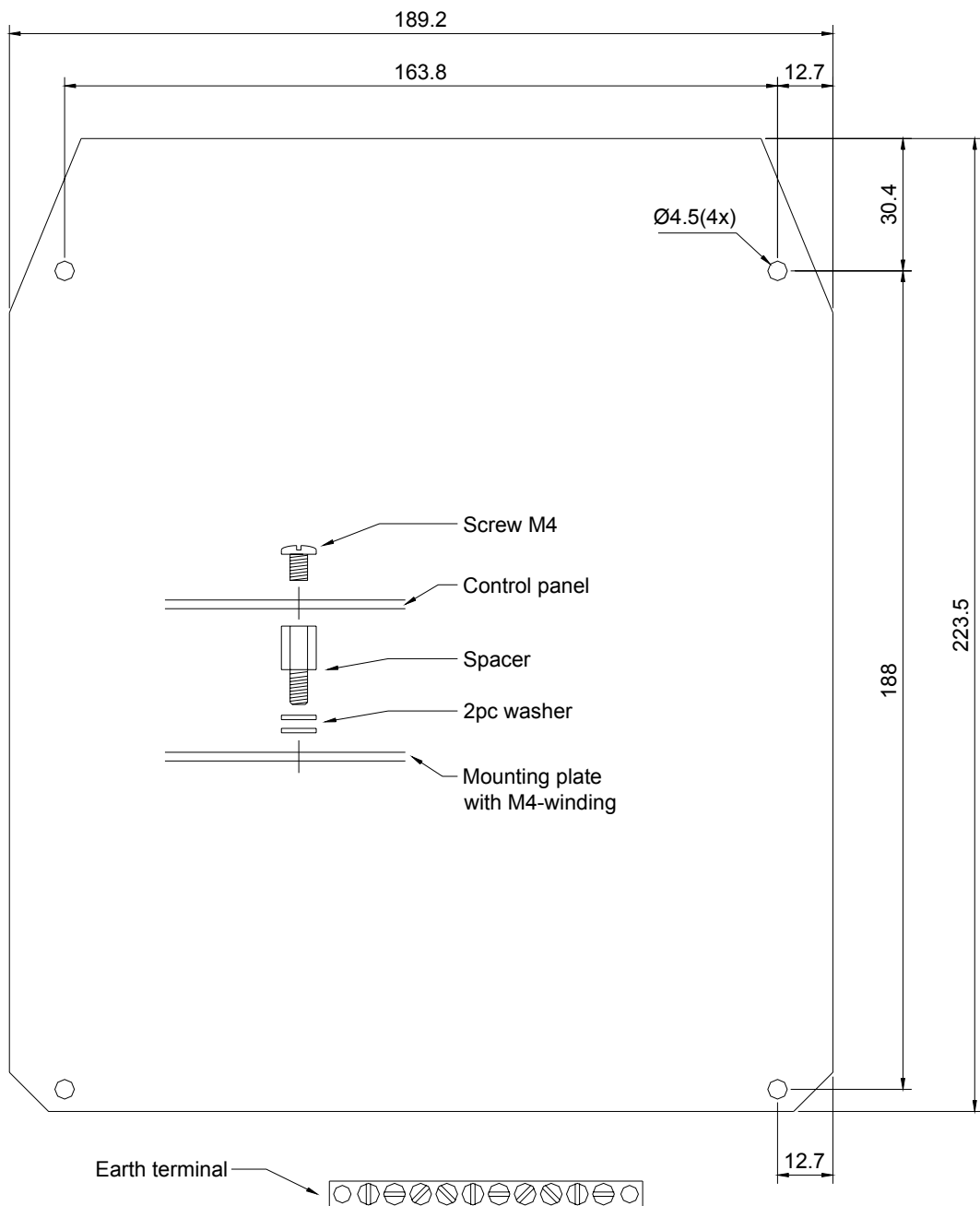
Connection

Assembly instructions

To ensure that the control panel is electrically safe, works correctly and fulfils valid directives, it is important that it is assembled correctly.

N.B.! The circuit board is earthed via the earth terminal, mounting plate, and the spacer screws used for fastening.

- The circuit board must be mounted on a metal plate.
- If the metal plate is painted, make sure that the paint is scraped away so good electrical contact is maintained.
- The four spacer screws M4 x 10 supplied must be used.
- The earth terminal must be mounted on the metal plate.



Connection

Connection instructions

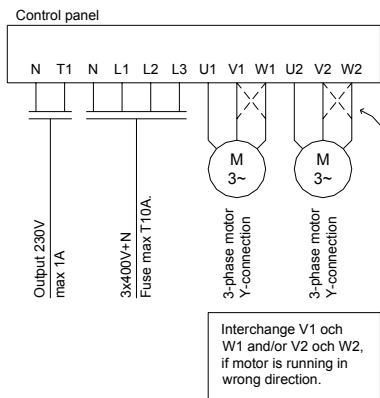
Connection of high voltage currents

- High voltage connection must be carried out by qualified personnel.
- The power supply to the circuit board must be secured with a max. T10 A fuse.
- The power supply must be connected via a lockable main switch.
- Incoming earth is connected to the earth terminal.
- Check that the voltage for the supply and motor are in accordance.
- The largest motor size that may be connected is 0.75 kW (3-phase 3 x 400V).
- See commissioning to check that the motor runs in the right direction.

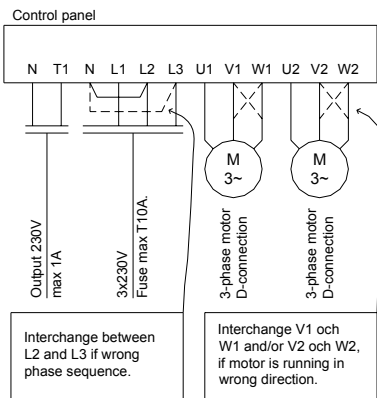
Sample drawing for motor type 230V/400V

Motor type 1-phase 230 V

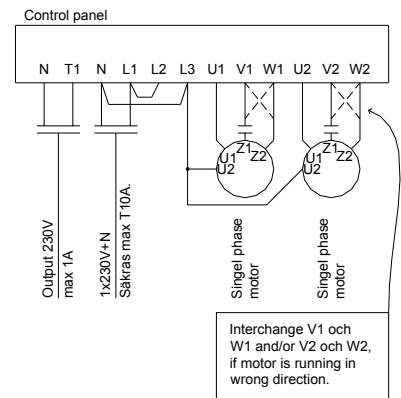
Supply 3x400V with neutral



Supply 3x230V without neutral

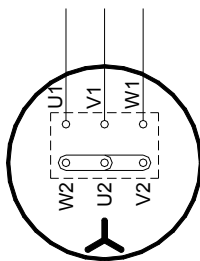


Supply single phase 230V

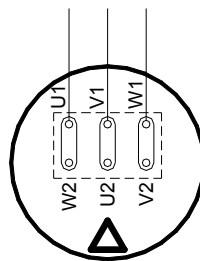


Other voltages can be offered on request!

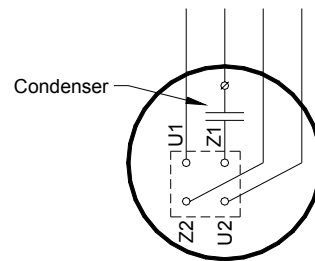
Connection of electric motor



3-phase motor
Y-connection



3-phase motor
D-connection



single phase motor

N.B.!
When using symmetrical 1-phase motors, contact DAAB Portteknik for separate connection instructions.
1-phase motors of Italian make are often symmetrical in type.

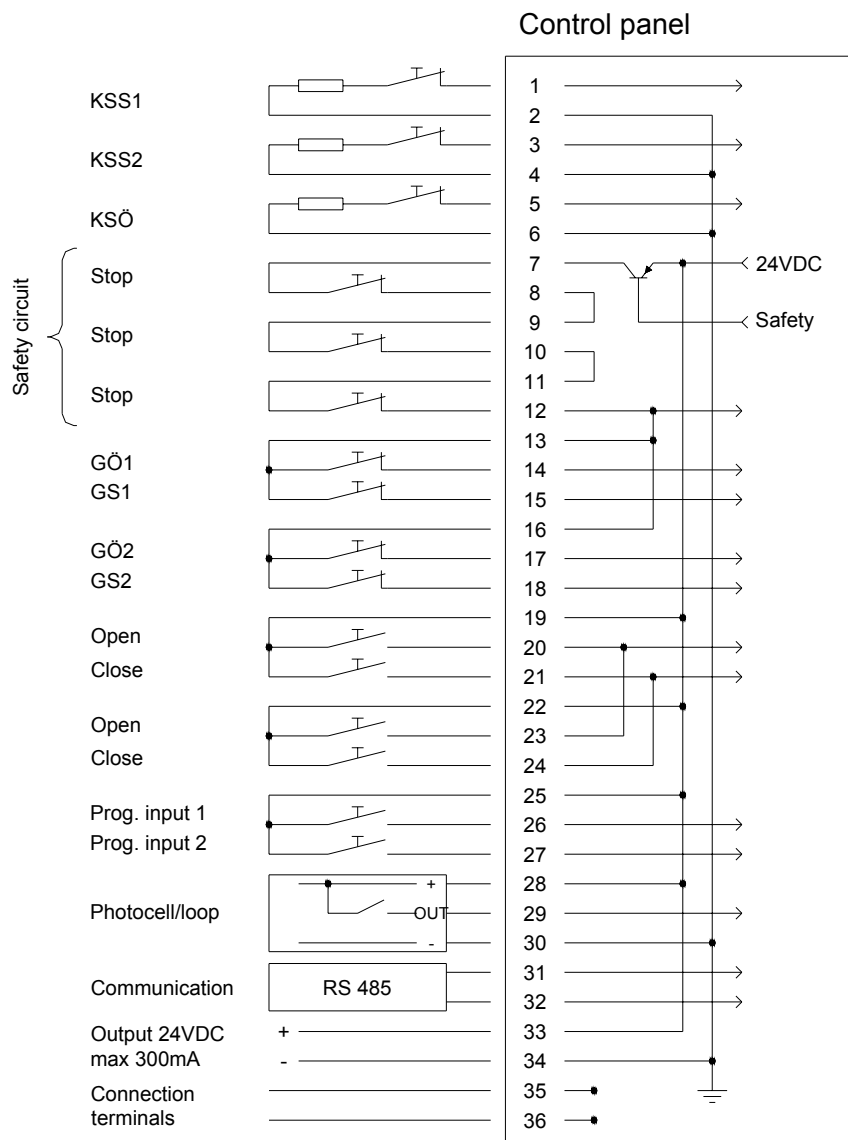
Connection

Connection of low voltage currents

Remember!

- The safety circuit is composed of stop inputs; nothing should be connected to the safety circuit which can cause disturbances, e.g. relay capstans or lights.
- Safety buffers and limit positions are electrically monitored. Nothing should be connect which can cause disturbances in monitoring, e.g. relay capstans or lights. If signals must be received for open and close, the output board should be used.
- Resistors for safety buffer monitoring should always be placed on the safety buffer in such a way that a break in resistance or the cable is registered as a safety “error”.
- This control panel is designed for many applications; therefore not all the input signals may be needed.
- Unused “stop” terminals must be linked out and photocell / loop terminals linked if not used.

For explanation of the input signals see the next page.



Connection

List of input signals

Safety Buffers

| Name | Terminal | Function |
|------|----------|--|
| KSS1 | 1.2 | Closing safety buffer 1, actuated when closing. Resistance measurement |
| KSS2 | 3.4 | Closing safety buffer 2, actuated when closing. Resistance measurement |
| KSÖ | 5.6 | Opening safety buffer, actuated when opening. Resistance measurement |

Stop, safety circuit

| Name | Terminal | Function |
|------------|----------|---|
| Safety Out | 7 | Output for safety circuit 24 V/0.5 A |
| Stop | 7.8 | Switch for stop, stops door. Contact normally closed. |
| Stop | 9.10 | Switch for stop, stops door. Contact normally closed. |
| Stop | 11.12 | Switch for stop, stops door. Contact normally closed. |

Limit positions, safety circuit

| Name | Terminal | Function |
|------|----------|--|
| | 13 | Separate +24VDC for common limit switches - motor 1 |
| GÖ1 | 14 | Opening limit switch for motor 1. Breaks contact in fully opened position. |
| GS1 | 15 | Closing limit switch for motor 1. Breaks contact in fully closed position. |
| | 16 | Separate +24VDC for common limit switches - motor 2 |
| GÖ2 | 17 | Opening limit switch for motor 2. Breaks contact in fully opened position. |
| GS2 | 18 | Closing limit switch for motor 2. Breaks contact in fully closed position. |

Control keys

| Name | Terminal | Function |
|---------------|----------|--|
| +24 VDC | 19 | Common +24 VDC for control keys. |
| Open | 20 | Door opens. +24 VDC on open signal. |
| Close | 21 | Door closes. +24 VDC on close signal. |
| +24 VDC | 22 | Common +24 VDC for control keys. |
| Open | 23 | Door opens. +24 VDC on open signal. |
| Close | 24 | Door closes. +24 VDC on close signal. |
| +24 VDC | 25 | Common +24 VDC for control keys. |
| Prog. Input 1 | 26 | Programmable input 1. +24 VDC on signal. |
| Prog. Input 2 | 27 | Programmable input 2. +24 VDC on signal. |

Photocell, safety loop

| Name | Terminal | Function |
|---------|----------|--|
| +24 VDC | 28 | Common +24 VDC for power supply, photocell 24 V/50 mA. |
| FC/SL | 29 | Photocell/loop, depending on settings, FC/SL will stop door's movement. Contact normally closed. |
| O0V | 30 | 0 V connected to 0-volt level and earth. |

Communication

| Name | Terminal | Function |
|-------|----------|-----------------------------------|
| RS485 | 31,32 | Communication with another EP103. |

24 V DC output

| Name | Terminal | Function |
|----------|----------|---|
| +24 V DC | 33 | +24 V DC for power supply to external devices. Max. 300 mA. |
| 0V | 34 | 0 V connected to 0-volt level and earth. |

Bridge connector

| Name | Terminal | Function |
|------------|----------|--|
| Connection | 35,36 | Connection terminal, 2 potential-free connection points. |

Connection

Connection of safety buffers

- Resistors for safety buffer monitoring should always be attached to the safety buffer in such a way that a break in resistance or the cable is registered as a safety “fault”.
- The resistance value can be 1.0 – 8.2 kΩ, 1 % tolerance and a power resistance of at least 0.5 W. DAAB’s safety buffer is delivered with 2.0 kΩ.
- When connecting more than one buffer, use the same resistance value on all buffers
- Safety buffers mounted on the gate leaf powered by motor 1 should be connected to KSS1. Safety buffers mounted on the gate leaf powered by motor 2 should be connected to KSS2.
- Maximum 4 safety buffers per input may be connected.

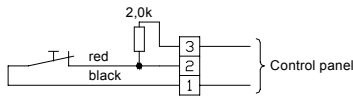


It is important that a minimum 25 % difference is attained for an actuated safety system, since many safety buffers are connected to one input.

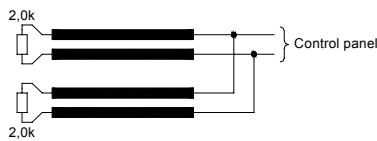
For use in contact-breaking functions, the resistor should be connected in series with the breaker switch. If more than one DAAB K2-type safety buffer is connected to one input, these should be connected in series or parallel, and the sum of the values should be set in the control panel. If safety buffers of the type solid state/tape switch are connected in series, use only one final resistor. See drawing below for details

Example: Four safety buffers should be connected to KSÖ. Connect in series. For a faulty safety buffer the difference is: 2 k divided by the sum of 8 k = 0.25 i.e. 25 % difference. This will be dependable solution.

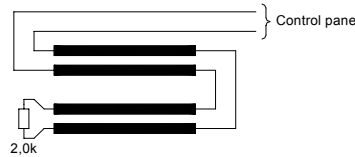
DAAB mechanical switching type safety buffer.



Solid state (resistance switching) safety buffer parallel connection



Solid state (resistance switching) safety buffer series connection.

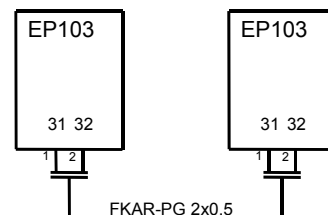


Connection of communication

To ensure correct communication between two control panels it is important to choose the correct cable and lay it properly.

Remember!

- Choose a twisted two-core screened cable.
- The cable size should not be less than 0.5 mm in diameter or 0.2 mm² in area.
- Choose a low capacitance cable with capacitance 50-70 pF/m.
- Use a screened cable. Let the screen follow to the contact terminal and connect the screen to the earth terminal or terminal 34.
- Check that the polarity is correct.
- A good cable to use is FKAR-PG, E 01 721 20.
- The cable length may not exceed 1000 m.



Reading and setting of values



| | |
|------------------|---|
| CXX | Channel number for EP103 |
| dXX | Channel number for vehicle detector |
| EXX | Error message |
| XXX | Read value |
| XXX-blink | Set value |
| - | Push-button to decrease channel or value |
| + | Push-button to increase channel or value |
| ↓ | Toggle between channel number and value |
| ↓ | Save/confirm set value |

Description

All values are stored according to a *channel list*. It is the same as with TV channels, where each TV channel corresponds to a particular programme. Here, each channel corresponds to a certain control parameter or a measured value.

The figure display may either show a *value* of 1-3 digits, or a *channel number* of two digits - a **C** or **d** will then be shown.

Values may be both read and set; *the value flashes* when a *setting* is being *changed*.

If **E** (error) is displayed, followed by a number, this is an **Error message**. See the section on error messages.

↓ key toggles between the value and the number for the channel. When entered, the value is saved.

+ key in channel position scrolls upwards in the channel list. When set, the value increases.

- key in channel position scrolls downwards in the channel list. When set, the value decreases.

When switched on, **EP1** is shown for control of 1 motor and **EP2** to control 2 motors.

Save mode

If display keys have not been pressed for 1.5 minutes, the save mode is tripped and *decreases in brightness*. As soon as a key is pressed, normal mode is resumed.

Reading values

C01-C19 and d01 –d06 are readout channels; by activating these you can only read the actual value.

Follow the procedure below in order to read values:

1. Press the ↓ button so that the display shows **Channel number** (C or d at extreme left).
2. Look at the channel list to check the number of the value you want to read.
3. Step up or down with the + or – button to the correct channel number.
4. Press the ↓ button; the **Value** appears on the display.

Setting values

C30-C99, d00, d31-d84 are channels which can be used to set values.

Follow the procedure below in order to set values:

1. Press the ↓ button so that the display shows **Channel number** (C or d at extreme left).
2. Look at the channel list to check the number of the value you want to change.
3. Step up or down with the + or – button to the correct channel number.
4. Press the ↓ button; the **Value** appears on the display.
5. Press the + button. The value begins to flash.
6. Step up or down with the + or – button until the value you want to set is shown.
7. Press the ↓ button; the value is saved.
8. Press the ↓ button once again to exit the channel and CXX or dXX is shown. The automatic control can be left in this position as it is not possible to exit further from the menus.

Reading/Setting

Locked settings

Settings may have been locked by service personnel, and therefore cannot then be set. In that case, channel C99 will be set to 01. Contact service personnel if values need to be set or changed.

Error messages

If 'E' (error) appears on the extreme left of the display, this is an error message. See chapter "Error messages" for explanations and resetting.

Note all settings

Note all the settings entered during commissioning in the channel list under "set values" (section on channel list for EP103. It is best to use a pencil so that values can be changed.

Indications

To make matters easier when commissioning and troubleshooting, light diodes (LEDs) are provided to indicate errors and input signals

| | |
|--|--|
| <p>Yellow LED for vehicle detector Lit diode = actuated detector loop.</p> | |
| <p>Error message on the display E (error) at extreme left of the display = error message. See section on troubleshooting.</p> | |
| <p>Red LED for error indication Unlit diode = no error. Lit diode = error remains. Flashing light diode = there has been an error*.</p> | |
| <p>Green LED for photocell should normally be lit Unlit light diode = actuated photocell/loop.</p> | |
| <p>Yellow LED for control buttons Lit diode = input/button actuated.</p> | |
| <p>Yellow LED for limit position Lit diode shuts off when limit is reached.</p> | |
| <p>Green LED normally lit STOP: Lit diode = Stop circuit OK. Unlit light diode = Stop circuit broken. 24V: Should always be lit.</p> | |

Explanations and default status for diodes can be found on the following page.

* The LED will be turned off the next time the door is operated in respective direction if the fault has been corrected.

Reading/Setting

Yellow LEDs for internal vehicle detector

| Indication | Function | Normal |
|------------|---|--------|
| SL1 | Indicates that detector loop SL1 is actuated. | Off |
| SL2 | Indicates that detector loop SL2 is actuated. | Off |

Red LEDs for alarms

| Indication | Function | Normal |
|------------|---|--------|
| M1 | Indicates that the load sensor has tripped out for motor 1. | Off |
| M2 | Indicates that the load sensor has tripped out for motor 2. | Off |
| KSS1 | Indicates an error on safety buffer "closing 1". | Off |
| KSS2 | Indicates an error on safety buffer "closing 2". | Off |
| KSÖ | Indicates an error on safety buffer "opening". | Off |

Green LEDs normally on

| Indication | Function | Normal |
|------------|--|--------|
| FC/SL | Indicates that photocell/loop circuit is inactive and circuit is closed. | On |
| 24 V DC | Indicates a 24 V DC voltage exists. | On |
| STOP | Indicates that the stop circuit is inactive and circuit is closed. | On |

Yellow LEDs which indicate control signals

| Indication | Function |
|------------|--|
| PROG1 | Indicates signal for programmable input 1. |
| PROG2 | Indicates signal for programmable input 2. |
| STÄNG | Indicates signal for close. |
| ÖPPNA | Indicates signal for open. |

Yellow LED which indicate signals from limit positions

| Indication | Function |
|------------|---|
| GÖ1 | Indicates that motor 1 can open more, unlit in open position |
| GS1 | Indicates that motor 1 can close more, unlit in closed position |
| GÖ2 | Indicates that motor 2 can open more, unlit in open position |
| GS2 | Indicates that motor 2 can close more, unlit in closed position |

Commissioning and functional description

Follow commissioning items in sequence so that the channels are set in the correct order.

Chapter about safety instructions must be read before installation.

The automatic control is delivered with a dead-man control system without the load sensor being connected.

Installations to be carried out in order for the controls to function:

| | |
|--|--|
| Rotation direction | Check that the motor drives in the correct direction. |
| Limit position | Cams for the limit position must be adjusted. |
| Load sensor (C30 - 31) | The load must be adjusted for the current door. |
| Control using dead-man control or Impulse (C33) | Delivered with dead-man control with disconnected load sensor. |
| Limited operation time (C32) | The time must be adjusted for the current door. |

Remember!

1. Check that everything is screwed tightly and correctly installed!
2. Check that everything is correctly connected and installed by a qualified installation engineer before turning on the power supply!
3. Remember to discharge eventual personal electrostatic charging by touching earthed objects, for example the earthed connection between the door and control cabinet, before installation or other work with EP103. Be careful when operating internal buttons so that contact with live details is avoided.
4. Check that no other person than the person commissioning can start the door via remote controls or that a signal can be received from e.g. a time switch. Disconnect when there is a risk of remote starts!
5. The description is common to the following automatic controls:
EP103-2, is a control for 2 drive units.
EP103-1, is a control for 1 drive unit.
The information in the description on gate leaf 2 or motor 2 does not apply for EP103-1.

Power On

During power on, the type of EP103 model in operation is shown in the display.

EP1=EP103-1 controls 1 motor

EP2=EP103-2 controls 2 motors

Error messages on the display

If 'E' (error) appears at the extreme left of the display together with two digits, this is an error message. If this occurs during commissioning, see chapter on error messages.

General commissioning

Rotation direction

Check that the motor runs in the correct direction by pressing open or close keys on the automatic control. Check that the motor starts turning in the correct direction, works as a dead-man control before the impulse is chosen (dead-man control = motor stopping immediately when the control key is released). Change the phase succession of the motor if the rotation direction is wrong; see chapter "Connection instructions"

Type of power supply (C34)

Only needs changing at facilities without neutral or 1-phase power supply!

Check that the correct type is installed:

0 = 3 x 400 V+N+PE.

1 = 3 x 230 V+PE (Norwegian voltage).

2 = 1-phase 1 x 230 V+N+PE.

3 = 3 x 400 V+PE without Neutral (requires modification 1 on control board, contact DAAB Portteknik)

If the correct type is not installed, change the value in C34.

Control of phase-succession (only applies to 3 x 230 V without neutral).

When neutral is missing, the load sensor refers between two phases and the phase succession between these must be correct. In order to see if the phase succession is correct, read C17. For disengaged, uncharged motors, the value should be approx. 0.20, if the phase succession is incorrect approx. 0.95 is shown and the load sensor disengages. For normal operation the value varies between 0.30 and 0.70, if the phase succession is wrong, 0.99 is shown and the load sensor disengages. If the value is not correct, change the phase succession (see Connection of high voltage currents).

Motor protection

The motor protection does not normally need to be changed when using a DAAB standard 3-phase 0.37 kW, Y-connected motor. If another type or larger motor is used, check the motor's ground current on the motor plate. The current on motor plate shall be set in C44 for motor 1 and in C45 for motor 2. The safety setting is set to disengage when the electric motor draws too much current. An internal protection switch measures the current on phase L1. The motor protection protects the electric motor if a phase disappears or the motor draws too much current. If no current is received by phase L1, the door is stopped and an error message is displayed. If the electric motor is locked, it will also draw abnormal amounts of current and the protection switch will disengage. An error message is displayed when the motor protection disengages and the motor is stopped immediately. It can be restarted directly without reinstallation being required.

Commissioning of road barriers

Control of indications

Check that all light diodes are lit correctly (according to section “Indications”), before continuing commissioning. If something is not correct, see connection instructions and check the connections. If things are still not exactly right, see section “Service/Troubleshooting” for measures.

Safety circuit

The safety circuit includes safety outputs, stop keys and contactors. If the control should discover an error when self-testing, there is an output in the automatic control which breaks the current to the contactors. The stop keys lie in series to the contactors and break the current to these.

Safety buffer monitoring (C40, C41, C42)

Since the road barrier only is intended for vehicular traffic isn't there any safety buffers, the inputs therefore, must be closed on the automatic control. The value for C40 – C42 must be 0.0. This is usually already set on delivery from DAAB. Light diodes for safety buffer KSS1, KSS2 or KSÖ can light, depending on the resistance setting having been set or not. Stop and limit positions must be correctly connected in order for the safety buffer monitoring to start.

Limit positions

Adjust the limit positions. Operate the barrier and check that the limit positions break in the correct position. For adjustment of limit position and mechanical stop, see instructions for use for the road barrier.

Limited operation time

To protect equipment against eventual errors, there is a limited operation time; this time must be set for a little longer period of time than the normal operation time. This is usually already set on delivery from DAAB.

- For dead-man controls there is no limited operation time and therefore it is easy to measure the time without the barrier being stopped should the set operation time be exceeded.

Measurement of operation time (C11)

1. Step to C11, operation time for motor 1. Readout should be from completely closed to fully open or vice versa.
2. Read and note the operation time for motor 1.

Installation of limited operation time (C32)

1. Step to C32 for installation of limited operation time.
2. Set for 3 seconds longer than the longest measured time.

Commissioning of road barriers

Load sensor

The load sensor on road barriers is normally installed on delivery from DAAB at 0.65 kW. However, the limit can require adjusting and the function must be tested according to the functions control. The load sensor functions by feeding expended output in kilowatts. Note that the load sensor only functions as material protection for the road barrier. The limit is set in C30. A red light diode, M1 for motor 1, indicates a higher load than the set limit value. Following an actuated safeguard, the light diode M1 flashes and the next time the road barrier operates the M1 will shut off.

On start, it is normal for the light diode to flash due to high charge at the starting moment, there is therefore, a time during the start when the load sensor is disengaged. The time for disengagement can be set in C90 and can be varied depending on the weight and size of the barrier rail. If the barrier rail operates unsmoothly it can be sensed as a load, and consideration must be taken of this.
Note! Increased setting in C90 may increase the clamp force!

It is possible in C89, to delay the time before the load sensor disengages, i.e. a higher value is accepted this time without the load sensor disengaging. This setting can be change if problems of “unwanted disengaging” occur with the barrier or for unsmooth operation.
Note! Increased setting in C89 may increase the clamp force!

The type of input voltage must be set for the automatic control in order for the load sensor to function, see page 18.

Reading of current load (C07)

Read the highest value while the road barrier is in operation and the motor is running.
Read C07 for motor 1.

Setting the limit for load sensors (C30)

Set the limit for loading motor 1 in C30. Normally an approx. 0.20 unit higher value, than the highest readout value.

Function of load sensor (C43)

For a disabled load sensor there is the possibility of choosing between reversing or stopping the road barrier (stop). There are many combinations to choose between for the safest functions. DAAB has as default value reversing for both opening and closing directions.

If the stop setting is used, the automatic control's closing time (depending on the setting in C52) will not restart until another control signal is given.

Reversing time (C94)

When reversing from closing direction, the barrier opens fully, however when reversing from an opening direction the barrier closes according to the time set in C94. Under the time set for reversing, due to disabled load sensor opening direction, the photocell (FC/SL), detector loop (SL1/SL2) and eventual opening signals are disabled so that the reversing will not be stopped.

Commissioning of road barriers

Impulse/Dead-man contact

Dead-man contact means that the control button must be held down to open or close, as soon as the button is released, the motor stops. The automatic control is delivered with a dead-man contact without the load sensor connected. It is possible to have a dead-man control system with the load sensor connected. C33 is then set to 4.

Impulse means that the control button is actuated to open or close the barrier automatically. This must be set for automatic operation of the barrier. Impulse can be set in the direction of choice.



EP103 is on delivery, set for dead-man control. Before choosing impulse control, the load sensor should be set.

Choice of impulse operation (C33)

1. Step to C33 for impulse/dead-man control.
2. Set to 3 if impulse is wanted in both the opening and closing directions see otherwise channel list. According to valid directives is dead-man contact not allowed on radio controls (channel C67 is not valid if channel C33 in set to dead-man contact).

Function control

- Check that the load sensor has been correctly set by braking the barrier until it disables. It should disengage during abnormal loading.
- Check that the barrier stops and reverses when an eventual detector loop or photocell is actuated.

Closing with dead-man control, for errors on detector loop or photocell

If the detector loop or photocell is broken or actuated, the automatic control automatically reverts to dead-man control operation in a closing direction. It is then possible to close the barrier using dead-man control by holding down the close button. The function is optional and can be shut off. It is not necessary for e.g. a caretaker to be able to close the barrier; if the sensor is broken the function can be shut off.

Closing the automatic link to dead-man control (C46)

1. Step to C46, set dead-man control operation for broken or actuated detector loop/photocell.
2. Set 0 as a value in the channel, it is then impossible to dead-man close when the detector loop or photocell is actuated.

Delay for direction change

For use when the time must be adjusted when the road barrier changes direction. It is used to achieve a quicker or slower reversal when changing directions.

Delay of direction change following actuated photocell/loop, open or close (C92)

1. Step to C92.
2. Set suitable time.

Delay of direction change following actuated load sensor (C93)

1. Step to C93.
2. Set suitable time. Note! Increased setting in C93 may increase the clamp force!

Commissioning of road barriers

Automatic closing

In order that the gate does not remain open, there is the possibility of closing it automatically according to a set time. The time between 0.1 sec. to 9.59 min. can be chosen. If a time of less than 10 seconds is desired, activate C49. If a time of more than 10 seconds is desired, activate C50. The time count will begin when the gate stops. If any control input or safety device is actuated in the closing direction, the time is zeroed and the count begins again.

When using automatic closing, it is suitable to have a radio or drawstring connected to an open input. This is so that a passer-by can give a new opening signal and the automatic closing time will begin to its countdown once again.

For disconnecting the automatic closing during certain times, see the section on programmable inputs (channels C61, C62).

Setting the automatic closing (C49 or C50)

1. Step to C49 or C50 for setting of the automatic closing.
2. Set the time desired for automatic closing. Use channel C49 to set a time under 10 seconds, for a time of more than 10 seconds use C50 instead.

N.B.! The barriers then close without warning!

The barrier must be equipped with a photocell or safety loop if automatic closing is to be used, the barrier can otherwise start closing, even if there is something in the way. Forewarning can be installed with an additional card which can control a warning light or warning sound.

Stop key, restart of automatic closing

There is an adjustable stop function. The function applies to both outer stop and the stop function of the programmable input. As a default value stop performs no restart of an automatic closing. If the road barrier is to always close automatically, even if stop has been actuated or following a voltage loss, the time must be set in C52 as well as in C49 or C50.



WARNING! Any remote signal will start the automatic close countdown after a stop signal has been sent. This applies to all normal open and close signals as well as programmable inputs. For example a year timer, radio transmitter, GSM-module or vehicle detector can be connected to these.

Setting of automatic closing following the activation of a stop command (C52)

1. Step to C52. Time-controlled automatic closing following activation of stop key.
2. Set the function desired. 0 = no automatic closing following stop.
0.20 – 9.59 min., sec. = automatic closing is shut off during the set time.

Commissioning of road barriers

Photocell/loop closing

The function sees to it that the automatic closing time count does not start until the photocell/loop has been passed by a vehicle. To activate the function, a time must be set in C51. The time set, should be that time after which the barrier will close, unless a vehicle arrives. If the photocell/loop is actuated and then inactivated (i.e. a vehicle passes) the barrier closes following the set automatic closing time. Automatic closing time must always be set (C49 or C50), in order to be able to have loop closing.

For example: C51 set to 5 min. C49 set to 1 sec. The barrier has opened but no one has passed. The barrier closes after 5 min. The barrier has opened and someone passes through: the barrier closes after 1 sec.

Setting the photocell/loop closing (C51, C54)

1. Step to C51 to set the maximum open time at loop closing.
2. Set the desired time for barrier closing if a vehicle has not passed through.

Closing can occur directly following the passage of the vehicle or after the barrier has first fully opened.

1. Step to C54, type of loop closing.
2. Set the desired type of closing.
 - 1 = vehicle passes; barrier opens fully and closes after time set in C49 or C50.
 - 0 = vehicle passes; barrier stops immediately and closes after time set in C49 or C50.

For example: C54 is set to 0. The setting can be used on barriers where the vehicle often passes before the fully opened position has been reached. The scenario then is that when a barrier has an opening direction and a vehicle passes, FC/SL, SL1* or SL2* stop the barrier and start the closing process instead.

**Only when vehicle detector DB312 is used and the loop closing is set, d50.*

Different times for loop closing

The settings below can be used for keeping the barrier open a longer period of time during passage in and a shorter time during passage out.

For example: When passing from the outside in, the barrier opens with e.g. a hand remote and the vehicle passes over the loops; the barrier then closes after 2 minutes. If the barrier opens and a vehicle passes from the inside out, the barrier closes immediately when the vehicle has passed the outer loop (SL1).

Outside: SL1, Inside SL2

C50 = 0.01
C51 = 2.00
d50 = 1
d62 = 3
d64 = 1

Photocell/Safety loops

Function of FC/SL, SL1 and SL2 during closing direction (C55)

When a vehicle passes FC/SL, SL1** or SL2** during closing direction it will normally reverse once again to a fully open position. In order to avoid a vehicle slipping in behind another vehicle, the barrier can instead stop and then close after the automatic closing time.

This function is set in C55.

1= vehicle passes in closing direction; barrier reverses to fully open again. Automatic closing time then closes the barrier.

2 = vehicle passes in closing direction; barrier stops in its position and then continues closing when the automatic closing time has counted down.

***Only when vehicle detector DB312 is used and the loop closing is set, d40.*

Commissioning of road barriers

Programmable inputs

There are two inputs with programmable functions on the automatic control panel. In the channel list there are 22 different alternatives to how the door can be controlled, see section "Channel list". Set in C61 for programmable input 1 and C62 for input 2. The default value for both channels is 00, i.e. input closed.

Explanation to programmable alternatives

Limited opening is a time-controlled opening. The time is set in a separate channel. Optional barrier half can be opened for a limited time.

Open/Stop/Close. Normally used with drawstring or remote controls. Opens respectively closes in the different end positions. When operating in an opening direction, the door stops and on a new command within five seconds changes direction to closing

Open/Close. Normally used with drawstring or remote controls. Opens respectively closes in the different end positions. With priority open, a closing can be stopped by a new command and the barrier will open.

Constant open, alternative 22. With an impulse the barrier opens and remains open when the automatic closing is shut off. To restore the automatic closing, an impulse is given for open or close.

Clarification: If alternative 17 up until and including 21 are used, a fixed signal is required for each input. When the signal is released, the automatic control is restored to its normal position.

Example for alternative 17: A signal arrives at 07.00 hours from a timer but this does not open the barrier. The first person to arrive in the morning after 07.00 hours opens the barrier with e.g. their remote control; the barrier opens and remains open during the day.
In the evening at 16.00 hours the signal is released from the timer and the closing time is automatically actuated.
If the barrier opens during the night, the gate will automatically close again according to the set closing time.

Example for alternative 18: The road barrier opens directly when a signal arrives to this input. The automatic closing is shut off as long as there is a fixed signal. Otherwise the function is the same as for the above setting.

Example for alternative 22: The road barrier is opened by an impulse and remains open since the automatic closing is simultaneously shut off. To restore the automatic closing, an impulse must be given for open or close.

Commissioning of gates

Commissioning of gate

Control of indications

Check that all light diodes are lit correctly (according to section "Indications"), before continuing commissioning. If something is not correct, see connection instructions and check the connections. If things are still not exactly right, see section "Service/Troubleshooting" for measures.

N.B.!

Light diodes for safety buffer KSS1, KSS2 or KSÖ can light, depending on the resistance setting having been set or not. Continue commissioning, this can be set at a later time.

Safety circuit

The safety circuit includes safety outputs, stop keys and contactors. If the control should discover an error when self-testing, there is an output in the automatic control which breaks the current to the contactors. The stop keys lie in series to the contactors and break the current to these.

Safety buffer monitoring

There is built-in safety buffer monitoring in the automatic control panel; it monitors itself through self-testing which occurs prior to all starts. If an error occurs on any safety buffers there will be an error indication. A resistor should be placed on the safety buffer sensor. The principle is that the automatic control measures the resistance to the resistor; there should then be a given resistance from the resistor. If there is a short circuit or break in the resistance the resistor is actuated and the automatic control registers it as actuated safeguard. There are light diodes which indicate actuated safeguards by lighting up. If there has been an actuated safeguard the light diodes will flash. The next time the door is operated the light diodes will shut off. Stop and limit positions must be correctly connected in order for the safety buffer monitoring to start.

Setting the safety buffer (C40, C41, C42)

The value of the safety buffer can be changed. This is usually already set on delivery from DAAB. The setting value is variable 1.0 - 8.2 kOhm. The setting values in C40 – C42 depend on which resistance value has been set for the safety buffer. DAAB's safety buffer is delivered with 2.0 kOhm.

For parallel connected resistance the resistance value is divided by the number used. The total is set in the channel in question. The total must not be below 1 kOhm.

For series connected resistance, the resistance values are added. The total is set in the channel in question. The total must not exceed 8.2 kOhm. The actual value can be read in C04 – C06. Check the settings in C40, C41, and C42.



It is important that the difference between the resistance values exceeds 25 % when the safety buffer is actuated, since more than one safety buffer can be connected to each input.

Function of load sensor (C47)

There is the possibility of choosing between reversing and stopping the gate when a safety buffer has been actuated. If the gate is equipped with a safety buffer for both opening and closing directions, there are a number of combinations to choose between for the best safety, depending on which functions the gate has. DAAB has as starting value, reversing for both KSS and KSÖ.

If the setting stop is used, the automatic control's closing time (depending on the setting in C52) will not restart until another control signal is given.

Commissioning of gates

Reversing time (C94)

When reversing from closing direction, the barrier opens fully, however when reversing from an opening direction the barrier closes according to the time set in C94. The channel is common for both KSÖ and a load sensor's opening direction. Under the set time for reversing, due to a disabled safeguard (load sensor or safety buffer KSÖ) in the opening direction, the photocell (FC/SL), and detector loop (SL1/SL2) and eventual opening signals are disabled so that the reversing will not be stopped.

Magnetic lock (extra accessory)

When using a magnetic lock the magnet must manage to release before the gate starts. Remaining remanence from the magnet must manage to disappear before the gate begins to open. Delay of the opening of the gate can therefore be arranged with an adjustable time between 0 – 0.99 sec. If the magnetic lock is of the overlapping type, which DAAB's magnetic locks are, a time must be set for delay of one of the gate leaves.

Time delay of manoeuvre (C39)

Check the settings in C39. When using DAAB's automatic magnetic lock DB310, this channel does not need to be set. For other automatic magnetic locks a time of at least 0.50 sec. must be set. (Time delay during manoeuvring).

Delaying one leaf of door, overlap

If there are 2 gate leaves and one overlaps the other, delay of one leaf is possible with an adjustable time between 0.1 – 5.00 seconds. When opening, the time set for motor 2 is delayed, and for closing motor 1.

Setting of delay of one door leaf (C38)

Check the settings in C38. Should normally be 3.00 seconds for gates with magnetic locks (time delay for opening motor 2). The time in C38 is dependant on the length of the gate leaves.

Limit position

Adjust the limit positions. Operate the barrier and check that the limit positions break in the correct position.

Limited operation time

To protect the equipment against eventual errors, there is a limited operation time; this time must be set for a little longer period of time than the normal operation time.

- For dead-man control there is no limited operation time and therefore it is easy to measure the time without the barrier being stopped should the set operation time be exceeded.

Measurement of operation time (C11, C12)

1. Step to C11, operation time for motor 1. Readout should be from completely closed to fully open or vice versa.
2. Read and note the operation time for motor 1.
3. If there are 2 motors, repeat for motor 2, C12 operation time for motor 2.

Installation of limited operation time (C32)

1. Step to C32 for installation of limited operation time.
2. Set for approx. 3 seconds longer than the longest measured time.

Commissioning of gates

Load sensor

The load sensor must be set to operate together with the current gate. The load sensor functions by feeding expended output in kilowatts. Depending on the type of gate, the load sensor will function only as material protection.

The limit is set in C30 and C31. Red light diodes M1 for motor 1 and M2 for motor 2 indicate higher loads than the set limit value. Following an actuated safeguard, the light diode M1 or M2 flashes and the next time the road barrier operates M1/M2 shuts off.

On start, it is normal for the light diode to flash due to high charge at the starting moment, there is therefore, a time during the start when the load sensor is disengaged. The time for disengagement can be set in C90 and can be varied depending on the weight and size of the gate. If the gate rail does not move smoothly it can be sensed as a load, and consideration must be taken of this.

It is possible in C89, to delay the time before the load sensor disengages, i.e. a higher value is accepted this time without the load sensor disengaging. This setting can be change if problems of “unwanted disengaging” occur with the gate or for unsmooth operation.

The type of power supply must be set for the automatic control in order for the load sensor to function, see page 17.

Reading of current load (C07, C08)

Read the highest value while the gate is in operation and the motor is running. Read C07 for motor 1. If there are 2 motors, read also C08 for motor 2.

Setting the limit for load sensors (C30, C31)

Set the limit for loading motor 1 in C30. Normally approx. a 0.20 unit higher value than the highest readout value. Set the limit for loading motor 2 in C31. Normally approx. a 0.20 unit higher value than the highest readout value. When setting is carried out shall always the gate manufactures approval documents be observed.

Function of load sensor (C43)

For a disabled load sensor there is the possibility of choosing between reversing or stopping the gate (stop). There are many combinations to choose between for the safest functions. DAAB has as default value reversing for both opening and closing directions.

If the stop setting is used, the automatic control's closing time (depending on the setting in C52) will not restart until another control signal is given.

Reversing time (C94)

When reversing from closing direction, the gate opens fully, however when reversing from an opening direction the gate closes according to the time set in C94. The channel is common for both KSÖ and a load sensor's opening direction. Under the set time for reversing, due to disabled safety (load sensor or safety buffer KSÖ) in the opening direction, the photocell (FC/SL), and detector loop (SL1/SL2) and eventual opening signals are disabled so that the reversing will not be stopped.

Commissioning of gates

Impulse/Dead-man contact

Dead-man contact means that the control key must be held down to open or close, as soon as the key is released the motor stops. The automatic control is delivered with dead-man contact without the load sensor connected. It is possible to have a dead-man control system with load sensor connected. C33 is then set to 4.

Impulse means that the control key is actuated to open or close the gate automatically. This must be set for automatic control of the gate. Impulse can be set in the direction of choice.



EP103 is delivered set for dead-man control. Before impulse control is chosen, the load sensor must be set.

Choice of impulse operation (C33)

1. Step to C33 for impulse/dead-man control.
2. Set to 3 if impulse is wanted in both the opening and closing directions see otherwise channel list. According to valid directives is dead-man contact not allowed on radio controls (channel C67 is not valid if channel C33 is set to dead-man contact).

Functional control of load sensor, safety buffer and photocell

- Check that the load sensor has been correctly set by braking the gate until it disables. It should disable during abnormal loading. Note that the load sensor on some sliding gates can be difficult to disable manually.
- Check that the gate stops and reverses when an eventual safety buffer or photocell is actuated. For two motors it must be checked that the correct safety buffer is actuated. Check that KSS1 light diode indicates when the safety buffer on that half with drive motor 1 is actuated. Check that KSS2 light diode indicates when the safety buffer on that half with drive motor 2 is actuated.

Delay for direction change

For use when the time must be adjusted when the gate changes direction. This is used to achieve a quicker or slower reversal when changing directions.

Delay of direction change following actuated photocell/loop, open or close (C92)

1. Step to C92.
2. Set suitable time.

Delay of direction change following actuated load sensor or safety buffer (C93)

1. Step to C93.
2. Set suitable time.

Commissioning of gates

Closing with dead-man control, for errors on safety buffer or photocell/loop

If the safety buffer or photocell/loop is broken, the automatic control reverts automatically to dead-man control in that direction the safety is actuated. It is then possible to open/close the gate using dead-man control by holding the control button down. The function is selectable and can be shut off. It is not necessary e.g. a caretaker to be able to close the gate; if the safety is broken the function can be shut off.

Closing of automatic change to dead-man control (C46)

1. Step to C46 for setting of dead-man control for broken a safeguard or actuated detector loop.
2. Set 0 as a value in the channel, it is then impossible to dead-man close when the sensor is actuated.

Priority in direction changes

The priority can be set; the automatic control is normally set to the priority open. Changes in the priority do not apply to open/stop/close or open/close functions in the programmable input.

Priority open only (C63=1):

If the door is closing and the key for open is actuated, the gate stops and starts to open. If the key for close is actuated during opening, nothing will happen.

Priority close only (C63=2):

If the gate is closing and the key for open is actuated, nothing happens. If the gate opens and the key for close is actuated, the gate stops and starts to close.

Priority open and close (C63=3):

If the gate is closing and the key for open is actuated, the gate stops and starts to open. If the gate opens and the key for close is actuated, the gate stops and starts to close.

No priority (C63=0):

If the gate closes or opens it cannot be stopped by pushing the key for open or close and nothing happens as long as the gate is moving.

Commissioning of gates

Automatic closing

In order for the gate not to remain open, there is the possibility of closing it automatically according to a set time. The time between 0.1 sec. to 9.59 min. can be chosen. If a time of less than 10 seconds is desired, activate C49. If a time of more than 10 seconds is desired, activate C50. The time countdown will start when the gate begins to close. If any control input or safeguard is actuated in the closing direction, the time is zeroed and the count begins again.

When using automatic closing, it is suitable to have a radio or drawstring connected to an open input. This is so that a passer-by can give a new opening signal and the automatic closing time will begin its countdown once again.

For disconnecting the automatic closing during certain times, see the section programmable inputs (channels C61, C62).

Setting the automatic closing (C49 or C50)

1. Step to C49 or C50 for setting of the automatic closing.
2. Set the time desired for automatic closing. Use channel C49 to set a time of less than 10 seconds, for a time of more than 10 seconds use C50 instead.

N.B.! The gates will then close without warning!

The gate must be equipped with a photocell or safety loop if automatic closing is to be used, it can otherwise start closing even if there is something in the way. Forewarning can be installed with an additional card which can control a warning light or warning sound.

Stop keys, restart of automatic closing

There is an adjustable stop function. The function applies to both outer stop and the stop function in a programmable input. As a default value, stop does not restart automatic closing. If the gate is always to be closed automatically, even when a stop key has been actuated or following voltage loss, a time must be programmed in C52 as well as in C49 or C50.



WARNING! Any remote signal will start the automatic close countdown after a stop signal has been sent. This applies to all normal open and close signals as well as programmable inputs. For example a year timer, radio transmitter, GSM-module or vehicle detector can be connected to these.

Setting of automatic closing following actuated stop command (C52)

1. Step to C52. Automatic closing time is shut off following an actuated stop key.
2. Set the function desired. 0 = no automatic closing following stop.
0.20 – 9.59 min., sec. = automatic closing shut off during set time.

Commissioning of gates

Photocell/loop closing

This function sees to it that the automatic closing time count does not start until the photocell/loop has been passed by a vehicle. To activate the function, a time must be set in C51. The time set, should be that time after which the gate will close, unless a vehicle arrives. If the photocell/loop is actuated and then deactivated (i.e. a vehicle passes) the gate closes following the automatic closing time. Automatic closing time must always be set in (C49 or C50) in order to be able to close the loop.

For example: C51 set to 5 min. C49 set to 1 sec. The gate has opened but no one has passed. The gate closes after 5 min. The gate has opened and someone passes through: the gate closes after 1 sec.

Setting the photocell/loop closing (C51, C54)

1. Step to C51 to set the maximum open time at loop closing.
2. Set the desired time for gate closing if a vehicle has not passed through.

Closing can occur directly following the passage of the vehicle or after the gate has first fully opened.

1. Step to C54, type of loop closing.
2. Set the desired type of closing.
 - 1 = vehicle passes; gate opens fully and closes according to time set in C49 or C50.
 - 0 = vehicle passes; gate stops immediately and closes according to time set in C49 or C50.

For example: C54 is set to 0. The setting can be used on gates where the vehicle often passes before the fully opened position has been reached. The scenario then is that when a gate has an opening direction and a vehicle passes FC/SL, SL1* or SL2*, the gate stops and begins the closing process instead.

**Only when vehicle detector DB312 is used and the loop closing is set, d50.*

Loop closing with DB312 and safety photocell with FC/SL (C56)

If the loop closing is programmed in the vehicle detector DB312, this will normally apply for FC/SL-inputs as well. If FC/SL only functions as a safeguard and not for closing, the setting in channel C56 is changed to 1.

For example: An exit gate in a car wash where the detector loop with safeguard and sling-closing functions is installed into the asphalt outside of the gate. At the gate opening there is also a photocell connected to FC/SL.

The function desired is that only vehicles passing the loop may automatically start the closing time, not the people who pass by the photocell.

Different times for loop closing

The settings below can be used for keeping the gate open a longer period of time during passage in and a shorter time during passage out.

For example: When passing from the outside in, the gate is opened using e.g. a hand remote and the vehicle passes over the loops; the gate then closes after 2 minutes. If the gate opens and a vehicle passes from the inside out, the gate closes immediately when the vehicle has passes the outer loop (SL1).

Outside: SL1, Inside SL2

C50 = 0.01
C51 = 2.00
d50 = 1
d62 = 3
d64 = 1

Commissioning of gates

Photocell/Safety loops

Function of FC/SL, SL1 and SL2 in closing direction (C55)

When a vehicle passes FC/SL, SL1** or SL2** during closing direction it will normally reverse once again to a fully open position. In order to avoid a vehicle slipping through behind another vehicle, the gate can instead stop and then close according to the automatic closing time.

Function setting is done in C55.

1= vehicle passes in closing direction, the gate reverses to fully open again. Automatic closing time then closes the gate.

2 = vehicle passes in closing direction; the gate stops in its position and then continues closing when the automatic closing time has counted down.

***Only when vehicle detector DB312 is used and the loop closing is set, d40.*

Function of FC/SL in opening direction (C57)

When the gate is opening and a vehicle passes the photocell, nothing will normally happen. The possibility exists instead that the gate stops and closes according to automatic closing time. The function however causes a reversing for actuated photocells and the closing direction fails.

The gate can either close according to automatic closing time counted down or according to the setting in C52.

0 = Functions shut off (photocell has no effect on opening direction).

1 = Stop with restart of the automatic closing time.

2 = Stop with restart of the automatic closing time set in C52.

Commissioning of gates

Programmable inputs

There are two inputs with programmable functions on the automatic control panel. In the channel list there are 22 different alternatives to how the gate can be controlled, see section "Channel list". Set C61 for programmable input 1 and C62 for input 2. The default value for both channels is 00, i.e. input closed.

Explanation to programmable alternatives

Limited opening is a time-controlled opening. The time is set in a separate channel. Optional gate leaf can be opened for a limited time.

Open/Stop/Close. Normally used with drawstring or remote controls. Opens respectively closes in the different end positions. When operating in an opening direction, the gate stops and on a new command within five seconds changes the direction to closing

Open/Close. Normally used with drawstring or remote controls. Opens respectively closes in the different end positions. On priority open, a closing can be stopped by a new command and the gate will open.

Constant open, alternative 22. With an impulse the gate opens and remains open when the automatic closing is shut off. To restore the automatic closing, an impulse must be given for open or close.

Clarification: If alternatives 17 up until and including 21 are used, a fixed signal is required for each input. When the signal is released, the automatic control is restored to its normal position.

Example for alternative 17: A signal arrives at 07.00 hours from a timer but this does not open the gate. The first person to arrive in the morning after 07.00 hours opens the gate with e.g. their remote control; the gate opens and remains open during the day.
In the evening at 16.00 hours the signal is released from the timer and the closing time is automatically actuated.
If the gate opens during the night, the gate will automatically close again according to the set closing time.

Example for alternative 18: The gate opens directly when a signal arrives to this input. The automatic closing is shut off as long as there is a fixed signal. Otherwise, the function is the same as for the above setting.

Example for alternative 22: The gate is opened by an impulse and remains open since the automatic closing is simultaneously shut off. To restore the automatic closing, an impulse must be given for open or close.

Commissioning of folding doors

Commissioning of folding door

Control of indications

Check that all light diodes are lit correctly (according to section “Indications”), before continuing commissioning. If something is not correct, see connection instructions and check the connections. If things are still not exactly right, see section “Service/Troubleshooting” for measures.

N.B.!

Light diodes for safety buffer KSS1, KSS2 or KSÖ can light, depending on the resistance setting having been set or not. Continue commissioning, this can be set at a later time.

Safety circuits

The safety circuit includes safety outputs, stop keys and contactors. If the control should discover an error when self-testing, there is an output in the automatic control which breaks the current to the contactors. The stop keys lie in series to the contactors and break the current to these.

Safety buffer monitoring

There is built-in safety buffer monitoring in the automatic control panel; it monitors itself through self-testing which occurs prior to all starts. If an error occurs on any safety buffers there will be an error indication. A resistor should be placed by the safety buffer sensor. The principle is that the automatic control measures the resistance to the resistor; there should then be a given resistance from the resistor. If there is a short circuit or break in the resistance the resistor is actuated and the automatic control registers it as an actuated safeguard. There are light diodes which indicate actuated safeguards by lighting up. If there has been an actuated safety the light diodes will flash. The next time the door is operated the light diodes will shut off. Stop and limit positions must be correctly connected in order for the safety buffer monitoring to start.

Setting the safety buffer (C40, C41, C42)

The value of the safety buffer can be changed. This is usually already set on delivery from DAAB. The setting value is variable 1.0 - 8.2 kOhm. The setting values in C40 – C42 depend on which resistance value has been set for the safety buffer. DAAB’s safety buffer is delivered with 2.0 kOhm.

For parallel connected resistance the resistance value is divided by the number used. The total is set in the channel in question. The total must not be below 1 kOhm.

For series connected resistance, the resistance values are added. The total is set in the channel in question. The total must not exceed 8.2 kOhm. The actual value can be read in C04 – C06. Check the settings in C40, C41, and C42.



It is important that the difference between the resistance values exceeds 25 % when a safety buffer is actuated since more than one safety buffer can be connected per input.

Function of load sensor (C47)

There is the possibility of choosing between reversing and stopping the door when a safety buffer has been actuated. If the door is equipped with a safety buffer for both opening and closing directions, there are a number of combinations to choose between for the best safeguards, depending on which functions the door has. DAAB has as starting value, reversing for both KSS and KSÖ.

If the setting stop is used, the automatic control’s closing time (depending on the setting in C52) will not restart until another control signal is given.

Commissioning of folding doors

Reversing time (C94)

When reversing from closing direction, the door opens fully, however when reversing from an opening direction the door closes according to the time set in C94. The channel is common for both KSÖ and a load sensor's opening direction. Under the set time for reversing, due to disabled safety (load sensor or safety buffer KSÖ) in the opening direction, the photocell (FC/SL), and detector loop (SL1/SL2) and eventual opening signals are disabled so that the reversing will not be stopped.

Limit position

To decide the stop position for a door in closed position there are two possibilities. Alternative one, the default setting, stops directly at limit position. Alternative two, the door can close a little extra after the limit position closing has been actuated. The advantage is in not having to reach the limit positions repeatedly in order to adjust the stop position and that the door lies as tightly against the frame as possible without the load sensor disabling.

1. Stop directly at limit position

Adjust in limit positions for opened and closed. Operate the door and check that the limit positions break in the correct position.

Hint!

Use the load sensor as a control that the limit position for closed position had been adjusted correctly. When the door arrives at the closed position, it should push gently against the frame, when it meets the frame the load increases and this readout can be seen, see load sensor.

2. Overrun time, closing direction

Adjust the limit position to open. Adjust the limit position for closed roughly so that the door must close a few centimetres more. The time the door needs to close when the limit position close has been broken is called overrun time. During overrun time no reversing of the load sensor or safety buffer occurs, it is possible to allow the rubber mouldings to clamp together without the load sensor disabling. The door stops after the time has run out or according to the setting in C36. It is optional for the door to stop on time in combination with a load sensor or safety buffer or both parts. See the channel list C35 for alternatives (N.B.! Channel C36 is subordinate to C48, see below).

The overrun time is set in C87 for motor 1 and C88 for motor 2.

Safety buffer reversing during overrun time (C48)

Normally when the time for overrun in the closing direction is set in C87/C88, the channel C36 is set to default value 3. This means that the time for overrun breaks either when the load sensor or the safety buffer disables or following the overrun time countdown.

With C48 there is the possibility of reversing occurring even when the safety buffer is actuated during the set overrun time, C48 is then changed to 1.

Some doors have in themselves an "unwished for self-operation" i.e. following the limit position for closed mode being actuated, the door moves a little bit extra before stopping completely. In order for the safety buffer to work during this time, the alternative 2 is set in C48. To set how long a time this "unwished for self-operation time", use C92.

0 = Function is shut off. No reversing occurs on actuated safety buffers during the overrun time.

1 = Reversing occurs on actuated safety buffers during the overrun time.

2 = Reversing occurs on actuated safety buffers during overrun time as well as during time set in C92.

N.B.! Channel C48 is superior to C36.

Commissioning of folding doors

Limited operation time

To protect the equipment against eventual errors, there is a limited operation time; this time must be set for a little longer period of time than the normal operation time.

- For dead-man control there is no limited operation time and therefore it is easy to measure the time without the door being stopped should the set operation time be exceeded.

Measurement of operation time (C11, C12)

1. Step to C11, operation time for motor 1. Readout should be from completely closed to fully open or vice versa.
2. Read and note the operation time for motor 1.
3. If there are 2 motors, repeat for motor 2, C12 operation time for motor 2.

Installation of limited operation time (C32)

1. Step to C32 for installation of limited operation time.
2. Set for approx. 3 seconds longer than the longest measured time.

Commissioning of folding doors

Load sensor

The load sensor must be set to operate together with the current door. The load sensor functions by feeding expended output in kilowatts. The limit is set in C30 and C31. Red light diodes M1 for motor 1 and M2 for motor 2 indicate higher loads than the set limit value. Following an actuated safeguard, the light diode M1 or M2 flashes and the next time the door operates M1/M2 shuts off.

On start, it is normal for the light diode to flash due to high charge at the starting moment, there is therefore, a time during the start when the load sensor is disengaged. The time for disengagement can be set in C90 and can be varied depending on the weight and size of the door. If the door does not move smoothly it can be seen as a load, and consideration must be taken of this.

It is possible in C89, to delay the time before the load sensor disengages, i.e. a higher value is accepted this time without the load sensor disengaging. This setting can be changed if problems of "unwanted disengaging" occur with the door or for unsmooth operation.

The type of input current must be set for the automatic control in order for the load sensor to function, see page 17.

Reading of current load (C07, C08)

Read the highest value while the door is in operation and the motor is running.
Read C07 for motor 1. If there are 2 motors, read also C08 for motor 2.

Setting the limit for load sensors (C30, C31)

Set the limit for loading motor 1 in C30. Normally approx. a 0.20 unit higher value than the highest readout value. Set the limit for loading motor 2 in C31. Normally approx. a 0.20 unit higher value than the highest readout value.

N.B.!

If there is risk of the door jerking or unsmooth running, the automatic control senses this as a load. Test by reading the load and restarting the door in different positions. For problems, try changing the limits in C89 and/or C90.

When the door arrives at the nearly closed position and clamps the rubber mouldings together, the load will increase. Adjust eventually the limit position and length of the arms, so that moderate pressure is achieved in the closed position.

Function of load sensor (C43)

For a disabled load sensor there is the possibility of choosing between reversing and stopping the door (stop). There are many combinations to choose between for the safest functioning. DAAB has as default value, reversing for both opening and closing directions.

If the stop setting is used, the automatic control's closing time (depending on the setting in C52) will not restart until another control signal is given.

Reversing time (C94)

When reversing from closing direction, the door opens fully, however when reversing from an opening direction the door closes according to the time set in C94. The channel is common for both KSÖ and a load sensor's opening direction. Under the set time for reversing, due to disabled safety (load sensor or safety buffer KSÖ) in the opening direction, the photocell (FC/SL), and detector loop (SL1/SL2) and eventual opening signals are disabled so that the reversing will not be stopped.

Commissioning of folding doors

Impulse/Dead-man contact

Dead-man contact means that the control key must be held down to open or close, as soon as the key is released, the motor stops. The automatic control is delivered with a dead-man contact without the load sensor connected. It is possible to have a dead-man control system with the load sensor connected. C33 is then set to 4.

Impulse means that the control key is actuated to open or close the barrier automatically. This must be set for automatic operation of the door. Impulse can be set in the direction of choice.



EP103 is set for dead-man control on delivery. Before choosing impulse control, the door should be equipped with a safety buffer and the load sensor set. The function must be checked.

Choice of impulse operation (C33)

1. Step to C33 for impulse/dead-man control.
2. Set to 3 if impulse is wanted in both the opening and closing directions see otherwise channel list. According to valid directives is dead-man contact not allowed on radio controls (channel C67 is not valid if channel C33 in set to dead-man contact).

Functional control of load sensor monitor, safety buffer and photocell

- Check that the load sensor monitor has been correctly set by braking the door until it disables. It should disable during abnormal loading.
- Check that the door stops and reverses when an eventual safety buffer or photocell is actuated. For two motors is must be checked that the correct safety buffer is actuated. Check that KSS1 light diode indicates when the safety buffer on that half with drive motor 1 is actuated. Check that KSS2 light diode indicates when the safety buffer on that half with drive motor 2 is actuated.

Delay for direction change

For adjusting the time when the door changes direction and to achieve a faster or slower change in directions.

Delay of direction change following actuated photocell/loop, open or close (C92)

1. Step to C92.
2. Set suitable time.

Delay of direction change following actuated load sensor or safety buffer (C93)

1. Step to C93.
2. Set suitable time.

Commissioning of folding doors

Closing with dead-man control, for errors on safety buffer or photocell/loop

If the safety buffer or photocell/loop is broken, the automatic control reverts automatically to dead-man control in that direction the safety is actuated. It is then possible to open/close the door using dead-man control by holding the control button down. The function is selectable and can be shut off. It is not necessary e.g. a caretaker to be able to close the door; if the sensor is broken the function can be shut off.

Closing of automatic change to dead-man control (C46)

1. Step to C46 for setting of dead-man control for broken sensors or actuated detector loop.
2. Set 0 as the value in the channel, it is then impossible to dead-man close when the sensor is actuated.

Priority in direction changes

The priority can be set; the automatic control is normally set to the priority open. Changes in the priority do not apply to open/stop/close or open/close functions in the programmable input.

Priority open only (C63=1):

If the door is closing and the key for open is actuated, the door stops and starts to open. If the key for close is actuated during opening, nothing will happen.

Priority close only (C63=2):

If the door is closing and the key for open is actuated, nothing happens. If the door opens and the key for close is actuated, the door stops and starts to close.

Priority open and close (C63=3):

If the door is closing and the key for open is actuated, the door stops and starts to open. If the door opens and the key for close is actuated, the door stops and starts to close.

No priority (C63=0):

If the door closes or opens it cannot be stopped by pushing the key for open or close and nothing happens as long as the door is moving.

Commissioning of folding doors

Automatic closing

In order for the door not to remain open, there is the possibility of closing it automatically according to a set time. The time between 0.1 sec. to 9.59 min. can be chosen. If a time of less than 10 seconds is desired, activate C49. If a time of more than 10 seconds is desired, activate C50. The time count will begin when the door stops. If any control input or safeguard is actuated in the closing direction, the time is zeroed and the count begins again.

When using automatic closing, it is suitable to have a radio or drawstring connected to an open input. This is so that a passer-by can give a new opening signal and the automatic closing time will begin its countdown once again.

For disconnecting the automatic closing during certain times, see the section programmable inputs (channels C61, C62).

Setting the automatic closing (C49 or C50)

1. Step to C49 or C50 for setting of the automatic closing.
2. Set the time desired for automatic closing. Use channel C49 to set a time of less than 10 seconds, for a time of more than 10 seconds use C50 instead.

N.B.! The door then closes without warning!

The door must be equipped with a photocell or safety loop if the automatic closing is to be used, the door can otherwise begin to close even if there is something in the way. Forewarning can be installed with an additional card which can control a warning light or warning sound.

Stop keys, restart of automatic closing

There is an adjustable stop function. The function applies to both outer stop and the stop function in the programmable input. As a default value stop does not restart automatic closing. If the door is always to be closed automatically, even when a stop key has been actuated or following voltage loss, a time must be programmed in C52 as well as in C49 or C50.



WARNING! Any remote signal will start the automatic close countdown after a stop signal has been sent. This applies to all normal open and close signals as well as programmable inputs. For example a year timer, radio transmitter, GSM-module or vehicle detector can be connected to these.

Setting of automatic closing following actuated stop command (C52)

1. Step to C52. Automatic closing time is shut off following actuated stop key.
2. Set the function desired. 0 = no automatic closing following stop.
0.20 – 9.59 min., sec. = automatic closing shut off during set time.

Commissioning of folding doors

Photocell/loop closing

This function sees to it that the automatic closing time count does not start until the photocell/loop has been passed by a vehicle. To activate the function, a time must be set in C51. The time set, should be that time after which the door will close, unless a vehicle arrives. If the photocell/loop is actuated and then deactivated (i.e. a vehicle passes) the door closes following the automatic closing time. Automatic closing time must always be set in (C49 or C50) in order to be able to close the loop.

For example: C51 set to 5 min. C49 set to 1 sec. The door has opened but no one has passed. The door closes after 5 min. The door has opened and someone passes through: the door closes after 1 sec.

Setting the photocell/loop closing (C51, C54)

1. Step to C51 to set the max. open time at loop closing.
2. Set the desired time for door closing if a vehicle has not passed through.

Closing can occur directly following the passage of the vehicle or after the door has first opened fully.

1. Step to C54, type of loop closing.
2. Set the desired type of closing.
 - 1 = vehicle passes; door opens fully and closes according time set in C49 or C50.
 - 0 = vehicle passes; door stops immediately and closes after time set in C49 or C50.

For example: C54 is set to 0. The setting can be used on doors where the vehicle often passes before the fully opened position has been reached. The scenario then is that when a door has an opening direction and a vehicle passes FC/SL, SL1* or SL2* the door stops and begins the closing process instead.

**Only when vehicle detector DB312 is used and the loop closing is set, d50.*

Loop closing with DB312 and photocell with FC/SL (C56)

If the loop closing is programmed in the vehicle detector DB312 this will normally apply for FC/SL-inputs as well. If FC/SL only function as safeguards, not FC/SL-closing, the setting in channel C56 is changed to 1.

For example: An exit door in a car wash where the detector loop with safety and sling-closing functions are installed in the asphalt outside of the door. At the door opening there is also a photocell connected to FC/SL.

The function desired is that only vehicles passing the loop may automatically start the closing time, not the people who pass by the photocell.

Different times for loop closing

The settings below can be used for keeping the door open a longer period of time during passage in and a shorter time during passage out.

For example: When passing from the outside in, the door is opened using e.g. a hand remote and the vehicle passes over the loops; the door then closes after 2 minutes. If the door opens and a vehicle passes from the inside out, the door closes immediately when the vehicle has passed the outer loop (SL1).

Outside: SL1, Inside: SL2

C50 = 0.01
C51 = 2.00
d50 = 1
d62 = 3
d64 = 1

Commissioning of folding doors

Photocell/Safety loops

Function of FC/SL, SL1 and SL2 during closing direction (C55)

When a vehicle passes FC/SL, SL1** or SL2** during closing direction it will normally reverse once again to a fully open position. In order to avoid a vehicle slipping in behind another vehicle, the door can instead stop and then close after the automatic closing time.

Function setting is done in C55.

1= vehicle passes in closing direction, the door reverses to fully open again. Automatic closing time then closes the door.

2 = vehicle passes in closing direction; the door stops in its position and then continues closing when the automatic closing time has counted down.

***Only when vehicle detector DB312 is used and the loop closing is set, d40.*

Function of FC/SL in opening direction (C57)

When the door is opening and a vehicle passes the photocell, nothing will normally happen. The possibility exists instead that the door stops and closes according to automatic closing time. The function however causes a reversing for actuated photocells and the closing direction fails.

The door can either close after the automatic closing time has counted down or according to the setting in C52.

0 = The function is shut off (photocell has no effect on opening direction).

1 = Stop with restart of the automatic closing time.

2 = Stop with restart of the automatic closing time set in C52.

Commissioning of folding doors

Programmable inputs

There are two inputs with programmable functions on the automatic control panel. In the channel list there are 22 different alternatives to how the door can be controlled, see section "Channel list". Set C61 for programmable input 1 and C62 for input 2. The default value for both channels is 00, i.e. input closed.

Explanation to programmable alternatives

Limited opening is a time-controlled opening. The time is set in a separate channel. Optional door leaf can be opened for a limited time.

Open/Stop/Close. Normally used with drawstring or remote controls. Opens respectively closes in the different end positions. When operating in an opening direction, the door stops and on a new command within five seconds changes the direction to closing

Open/Close. Normally used with drawstring or remote controls. Opens respectively closes in the different end positions. On priority open, a closing can be stopped by a new command and the door will open.

Constant open, alternative 22. With an impulse the door opens and remains open when the automatic closing is shut off. To restore the automatic closing, an impulse is given for open or close.

Clarification: If alternatives 17 up until and including 21 are used, a fixed signal is required for each input. When the signal is released, the automatic control is restored to its normal position.

Example for alternative 17: A signal arrives at 07.00 hours from a timer but this does not open the door. The first person to arrive in the morning after 07.00 hours opens the door with e.g. their remote control; the barrier opens and remains open during the day.
In the evening at 16.00 hours the signal is released from the timer and the closing time is automatically actuated.
If the door opens during the night, the door will automatically close again according to the set closing time.

Example for alternative 18: The door opens directly when a signal arrives to this input. The automatic closing is shut off as long as there is a fixed signal. Otherwise the function is the same as for the above setting.

Example for alternative 22: The door is opened by an impulse and remains open since the automatic closing is simultaneously shut off. To restore the automatic closing, an impulse is given for open or close.

Commissioning of sectional overhead door

Control of indications

Check that all light diodes are lit correctly (according to section "Indications"), before continuing commissioning. If something is not correct, see connection instructions and check the connections. If things are still not exactly right, see section "Service/Troubleshooting" for measures.

N.B.!

Light diodes for safety buffer KSS1, KSS2 or KSÖ can light, depending on the resistance setting having been set or not. Continue commissioning, this can be set at a later time.

Safety circuits

The safety circuit includes safety outputs, stop keys and contactors. If the control should discover an error when self-testing, there is an output in the automatic control which breaks the current to the contactors. The stop keys lie in series to the contactors and break the current to these.

Safety buffer monitoring

There is built-in safety buffer monitoring in the automatic control panel; it monitors itself through self-testing which occurs prior to all starts. If an error occurs on any safety buffers there will be an error indication. A resistor should be placed by the safety buffer sensor. The principle is that the automatic control measures the resistance to the resistor; there should then be a given resistance from the resistor. If there is a short circuit or break in the resistance the resistor is actuated and the automatic control registers it as an actuated safeguard. There are light diodes which indicate actuated safety by lighting up. If there has been an actuated safeguard the light diodes will flash. The next time the door is operated the light diodes will shut off. Stop and limit positions must be correctly connected in order for the safety buffer monitoring to start.

Setting the safety buffer (C40, C41, C42)

The value of the safety buffer can be changed. This is usually already set on delivery from DAAB. The set value is variable 1.0 – 8.2 kΩ. The setting values in C40 – C42 depend on which resistance value has been set for the safety buffer. DAAB's safety buffer is delivered with 2.0 kΩ. Normally there is a safety buffer for closing direction for sectional overhead doors. If there is no resistance in the safety buffer, the resistor delivered by DAAB must be mounted as close to the breaker as possible.

When using only a safety buffer, C41 and C42 must be shut off. (C41 – C41 = 0.0)

Function of load buffer (C47)

There is the possibility of choosing between reversing and stopping the door when a safety buffer has been actuated. If the door is equipped with a safety buffer for both opening and closing directions, there are a number of combinations to choose between for the best safety, depending on which functions the door has. DAAB has as the default value, reversing for both KSS and KSÖ.

If the stop setting is used, the automatic control's closing time (depending on the setting in C52) will not restart until another control signal is given.

Reversing time (C94)

When reversing from closing direction, the door opens fully, however when reversing from an opening direction the door closes according to the time set in C94. The channel is common for both KSÖ and a load sensor's opening direction. Under the set time for reversing, due to disabled safety (load sensor or safety buffer KSÖ) in the opening direction, the photocell (FC/SL), and detector loop (SL1/SL2) and eventual opening signals are disabled so that the reversing will not be stopped.

Commissioning of sectional overhead doors

Limit position

Adjust the limit position to open. Then adjust the limit position to closed position by allowing the door to stop maximum 50 millimetres above the ground level. When the limit position has broken for closed position, reversing of the load sensor and reversing of the actuated safety buffer will not occur. Operate the door and check that the limit positions break in the correct position.

Overrun time (87)

Here, the overrun time is set for the door when it has passed limit position closed. The door stops after the time has run out or according to the setting in C36.

Overrun stop (87)

The door can stop on run-out time, load sensor or safety buffer, all the alternatives are set in C36 as a default value (C36 = 3). Depending on which occurs first, the door will stop. It is possible to control how hard the door will hit the floor. The time is decided by C87. If the door is to meet the floor softly, a short time is chosen so that the safety buffer is actuated precisely (C36 = 2). If the door is to meet the floor hard in order to tighten, it can stop on the safety buffer (C36 = 1).

For this setting, no safety buffer sign is required until C35 is set to 1, so the door adjustment can be done without the door coming into dead-man control in a closing direction (E16). The light diodes indicate which is actuated, the safety buffer (KSS1) or the load sensor (M1).

Limited operation time

To protect the equipment against eventual errors, there is a limited operation time; this time must be set for a little longer period of time than the normal operation time.

- For dead-man control there is no limited operation time and therefore it is easy to measure the time without the door being stopped if the set operation time is exceeded.

Measurement of operation time (C11)

1. Step to C11, operation time for motor 1. Readout should be from completely closed to fully open or vice versa.
2. Read and note the operation time for motor 1.

Installation of limited operation time (C32)

1. Step to C32 for installation of limited operation time.
2. Set for approx. 3 seconds longer than the longest measured time.

Commissioning of sectional overhead doors

Load sensor

The load sensor must be set to operate together with the door in question. The load sensor functions by feeding expended output in kilowatts. The limit is set in C30. A red light diode, M1 for motor 1, indicates a higher load than the set limit value. Following an actuated safeguard, the light diode M1 flashes and the next time the door operates, the M1 goes out.

On start, it is normal for the light diode to flash due to high charge at the starting moment, there is therefore, a time during the start when the load sensor is disengaged. The time for disengagement can be set in C90 and can be varied depending on the weight and size of the door. If the door does not move smoothly it can be sensed as a load, and consideration must be taken of this.

It is possible in C89, to delay the time before the load sensor disengages, i.e. a higher value is accepted this time without the load sensor disengaging. This setting can be changed if problems of "unwanted disengaging" occur with the door or for unsmooth operation.

The type of input current must be set for the automatic control in order for the load sensor to function, see page 17.

Reading of current load (C07)

Read the highest value while the door is in operation and the motor is running.
Read C07 for motor 1.

Setting the limit for load sensors (C30)

Set the limit for loading motor 1 in C30. Normally an approx. 0.20 unit higher value than the highest readout value.

Function of load sensor (C43)

For a disabled load sensor there is the possibility of choosing between reversing and stopping the door (stop). There are many combinations to choose between for the safest function. DAAB has as a default value, reversing for both opening and closing directions.

If the stop setting is used, the automatic control's closing time (depending on the setting in C52) will not restart until another control signal is given.

Reversing time (C94)

When reversing from closing direction, the door opens fully, however when reversing from an opening direction the door closes according to the time set in C94. The channel is common for both KSÖ and a load sensor's opening direction. Under the set time for reversing, due to disabled safety (load sensor or safety buffer KSÖ) in the opening direction, the photocell (FC/SL), and detector loop (SL1/SL2) and eventual opening signals are disabled so that the reversing will not be stopped.

Commissioning of sectional overhead doors

Impulse/Dead-man contact

Dead-man contact means that the control key must be held down to open or close; as soon as the key is released the motor stops. The automatic control is delivered with dead-man contact without the load sensor connected. It is possible to have a dead-man system with load sensor connected. C33 is then set to 4.

Impulse means that the control key is actuated to open or close the door automatically. This must be set for automatic operation of the door. Impulse can be set in the direction of choice.



EP103 is when deliver set for dead-man control. Before choosing impulse control, the door must be equipped with safety buffer and load sensor must be set. The function must be checked.

Choice of impulse operation (C33)

1. Step to C33 for impulse/dead-man control.
2. Set to 3 if impulse is wanted in both the opening and closing directions see otherwise channel list. According to valid directives is dead-man contact not allowed on radio controls (channel C67 is not valid if channel C33 in set to dead-man contact).

Commissioning of sectional overhead doors

Reversing, load-relieving and safety buffer monitoring.

Quick reversing (C93)

For sectional overhead doors quick reversing is often desired during actuated safeguards of the safety buffer and load sensors. The time is set to 0.1 seconds. Normally set by DAAB.

Closing load-relieving (C86)

To relieve the safety buffer in a closed position and prevent deformation as well as being able to release the door, there is a setting which opens for a short time when the door has reached the closed position. The time can be set up to 30 milli-seconds.

Safety buffer monitoring (C35 = 1)

Control with safety buffer signing for one motor only. The safety buffer should activate on each closing. In this way, the function is monitored by the safety buffer at each cycle. If the safety buffer does not sign, an error message (E16) is given and the control reverts to the dead-man control in the closing direction. To revert to impulse, the door must be closed using the dead-man control and a signing is then received. The closing limit position shows if a door is within the safety area and will not reverse.

Functional control

- Check that eventual locks break the stop circuit. Test drive the safety buffer signing by loosening the air tube to the safety buffer or in some other way simulate that a signing has not be received, check also that the door is closed by the dead-man control and that an error message E16 is received.
- Check that the load sensor has been correctly set by braking the door until it disables. It should disable during abnormal loading.
- Check that the door stops and reverses when an eventual safety buffer or photocell is actuated.

Delay for direction change

For adjusting the time when the door changes direction and to achieve a faster or slower change in directions.

Delay of direction change following actuated photocell/loop, open or close (C92)

1. Step to C92.
2. Set suitable time.

Commissioning of sectional overhead doors

Closing with dead-man control, for errors on safety buffer or photocell/loop

If the safety buffer or photocell/loop is broken, the automatic control reverts automatically to dead-man control in that direction the safety is actuated. It is then possible to open/close the door using dead-man control by pressing the control button down. The function is selectable and can be shut off. It is not necessary e.g. a caretaker to be able to close the door; if the sensor is broken the function can be shut off.

Closing of automatic change to dead-man control (C46)

1. Step to C46 for setting of dead-man control for broken sensors or actuated detector loop.
2. Set 0 as the value in the channel, it is then impossible to dead-man close when the sensor is actuated.

Priority in direction changes

The priority can be set; the automatic control is normally set to the priority open. Changes in the priority do not apply to open/stop/close or open/close functions in the programmable input.

Priority open only (C63=1):

If the door is closing and the key for open is actuated, the door stops and starts to open. If the key for close is actuated during opening, nothing will happen.

Priority close only (C63=2):

If the door is closing and the key for open is actuated, nothing happens. If the door opens and the key for close is actuated, the door stops and starts to close.

Priority open and close (C63=3):

If the door is closing and the key for open is actuated, the door stops and starts to open. If the door opens and the key for close is actuated, the door stops and starts to close.

No priority (C63=0):

If the door closes or opens it cannot be stopped by pushing the key for open or close and nothing happens as long as the door is moving.

Commissioning of sectional overhead doors

Automatic closing

In order for the door not to remain open, there is the possibility of closing it automatically according to a set time. The time between 0.1 sec. to 9.59 min. can be chosen. If a time of less than 10 seconds is desired, activate C49. If a time of more than 10 seconds is desired, activate C50. The time count will begin when the door stops. If any control input or safeguard is actuated in the closing direction, the time is zeroed and the count begins again.

When using automatic closing, it is suitable to have a radio or drawstring connected to an open input. This is so that a passer-by can give a new opening signal and the automatic closing time will begin to its countdown once again.

For disconnecting the automatic closing during certain times, see the section programmable inputs (channels C61, C62).

Setting the automatic closing (C49 or C50)

1. Step to C49 or C50 for setting of the automatic closing.
2. Set the time desired for automatic closing. Use channel C49 to set a time of less than 10 seconds, for a time of more than 10 seconds use C50 instead.

N.B.! The door then closes without warning!

The door must be equipped with a photocell or safety loop if automatic closing is to be used, it can otherwise start closing even if there is something in the way. Forewarning can be installed with an additional card which can control a warning light or warning sound.

Stop keys, restart of automatic closing

There is an adjustable stop function. The function applies to both outer stop and the stop function in the programmable input. As a default value, stop does not restart automatic closing. If the door is always to be closed automatically, even when a stop key has been actuated or following voltage loss, a time must be programmed in C52 as well as in C49 or C50.



WARNING! Any remote signal will start the automatic close countdown after a stop signal has been sent. This applies to all normal open and close signals as well as programmable inputs. For example a year timer, radio transmitter, GSM-module or vehicle detector can be connected to these.

Setting of automatic closing following activation of stop command (C52)

1. Step to C52. Automatic closing time is shut off following actuated stop key.
2. Set the function desired. 0 = no automatic closing following stop.
0.20 – 9.59 min., sec. = automatic closing shut off during set time.

Commissioning of sectional overhead doors

Photocell/loop closing

This function sees to it that the automatic closing time count does not start until the photocell/loop has been passed by a vehicle. To activate the function, a time must be set in C51. The time set, should be that time after which the door will close, unless a vehicle arrives. If the photocell/loop is actuated and then inactivated (i.e. a vehicle passes) the door closes following the automatic closing time. Automatic closing time must always be set in (C49 or C50) in order to be able to close the loop.

For example: C51 set to 5 min. C49 set to 1 sec. The door has opened but no one has passed. The door closes after 5 min. The door has opened and someone passes through: the door closes after 1 sec.

Setting the photocell/loop closing (C51, C54)

1. Step to C51 to set the maximum open time at loop closing.
2. Set the desired time for door closing if a vehicle has not passed through.

Closing can occur directly following the passage of the vehicle or after the door has first fully opened.

1. Step to C54, type of loop closing.
2. Set the desired type of closing.
 - 1 = vehicle passes; door opens fully and closes according time set in C49 or C50.
 - 0 = vehicle passes; door stops immediately and closes after time set in C49 or C50.

For example: C54 is set to 0. The setting can be used on doors where the vehicle often passes before the fully opened position has been reached. The scenario then is that when a door has an opening direction and a vehicle passes FC/SL, SL1* or SL2* the door stops and begins the closing process instead.

**Only when vehicle detector DB312 is used and the loop closing is set, d50.*

Loop closing with DB312 and photocell with FC/SL (C56)

If the loop closing is programmed in the vehicle detector DB312 this will normally apply for FC/SL-inputs as well. If FC/SL only function as safeguards, not FC/SL-closing, the setting in channel C56 is changed to 1.

For example: An exit door in a car wash where the detector loop with safety and sling-closing functions are installed in the asphalt outside of the door. At the door opening there is also a photocell connected to FC/SL.

The function desired is that only vehicles passing the loop may automatically start the closing time, not the people who pass by the photocell.

Different times for loop closing

The settings below can be used for keeping the door open a longer period of time during passage in and a shorter time during passage out.

For example: When passing from the outside in, the door is opened using e.g. a hand remote and the vehicle passes over the loops; the door then closes after 2 minutes. If the barrier opens and a vehicle passes from the inside out, the door closes immediately when the vehicle has passed the outer loop (SL1).

Outside: SL1, Inside: SL2

C50 = 0.01
C51 = 2.00
d50 = 1
d62 = 3
d64 = 1

Commissioning of sectional overhead doors

Photocell/Safety loops

Function of FC/SL, SL1 and SL2 during closing direction (C55)

When a vehicle passes FC/SL, SL1** or SL2** during closing direction it will normally reverse once again to a fully open position. In order to avoid a vehicle slipping in behind another vehicle, the door can instead stop and then close after the automatic closing time.

Function setting is done in C55.

1= vehicle passes in closing direction, the door reverses to fully open again. Automatic closing time then closes the door.

2 = vehicle passes in closing direction; the door stops in its position and then continues closing when the automatic closing time has counted down.

***Only when vehicle detector DB312 is used and the loop closing is set, d40.*

Commissioning of sectional overhead doors

Programmable inputs

There are two inputs with programmable functions on the automatic control panel. In the channel list there are 22 different alternatives to how the door can be controlled, see section "Channel list". Set C61 for programmable input 1 and C62 for input 2. The default value for both channels is 00, i.e. input closed.

Explanation to programmable alternatives

Open/Stop/Close. Normally used with drawstring or remote controls. Opens respectively closes in the different end positions. When operating in an opening direction, the door stops and on a new command within five seconds changes direction to closing

Open/Close. Normally used with a drawstring control or remote control. Opens respectively closes in the different end positions. On priority open, a closing can be stopped by a new command and the door will open.

Constant open, alternative 22. With an impulse the door opens and remains open when the automatic closing is shut off. To restore the automatic closing, an impulse is given for open or close.

Clarification: If alternatives 17 up until and including 21 are used, a fixed signal is required for each input. When the signal is released, the automatic control is restored to its normal position.

Example for alternative 17: A signal arrives at 07.00 hours from a timer but this does not open the door. The first person to arrive in the morning after 07.00 hours opens the door with e.g. their remote control; the door opens and remains open during the day.
In the evening at 16.00 hours the signal is released from the timer and the closing time is automatically actuated.
If the door opens during the night, the door will automatically close again according to the set closing time.

Example for alternative 18: The door opens directly when a signal arrives to this input. The automatic closing is shut off as long as there is a fixed signal. Otherwise the function is the same as for the above setting.

Example for alternative 22: The door is opened by an impulse and remains open since the automatic closing is simultaneously shut off. To restore the automatic closing, an impulse is given for open or close.

Additional cards

Output card

General description

The output card is an additional card which can be mounted onto EP103. For technical data and connection, see instructions for use for output cards.

Commissioning and functional description

Settings for output cards (C70)

The channels for output cards are only shown if they are set for output card use. To set output cards, change the value in C70 to 1.

Function of output 2 (C71)

Set the function desired.

0 = Shut off, 1 = Traffic light, 2 = Movement indication, 3 = Position indication

The difference between traffic light and position indication is that position indication indicates the current position but the traffic light also works on given control signals.

Type of signal for output 2 (C72 – C74)

This applies only if a traffic light or a position indication is set in C71. There are different signals in closed, in-between or open positions depending on the setting.

0 = no indication, 1 = fixed light and 2 = flashing light.

Set the desired signal for closed (C72) in-between (C73) and open (C74) positions.

Movement indication output 2 (C75)

To receive indications during the time the door is moving, the movement indication is set in C71 (function output 2). C75 is then changed depending on which type of signal is desired:

0 = Unlit, 1 = Fixed signal, 2 = Flash signal.

Forewarning output 2 (C76, C77)

It is possible to receive forewarning through a set time before closing or opening occurs, the time is set in C77. Channel C76 is used to choose fixed or flashing signals. Forewarning can be used together with movement indication and traffic light, however not as a position indication.

(C76)

0 = Shut off.

1 = Fixed before automatic opening and closing.

2 = Flash before automatic opening and closing.

3 = Fixed before closing signals, automatic opening and closing.

4 = Flash before closing signals, automatic opening and closing.

5 = Fixed before opening signals, closing signals, automatic opening and closing.

6 = Flash before opening signals, closing signals, automatic opening and closing.

Explanation: automatic opening = fixed signal via timer to programmable input and setting C61/C62=18.

Flash frequency (C82)

The flash frequency can be set for the outputs. The setting in C82 is common for output 1 and 2. The default value is 0.5 seconds.

Additional cards

Function of output 1 (C78)

Set the function desired.

0 = Shut off output.

1 = Traffic light (indicates the current position but works also against given control signals).

2 = Alarm output (becomes actuated when safety buffer is actuated).

3 = Position indication, indicates the current position.

4 = Presence detection or direction sensor. The function is set in d91, see section on vehicle detector.

Type of signal for output 1 (C79 – C81)

This applies only if a traffic light or a position indication is set in C78. There are different signals in closed, in-between or open positions depending on the setting. Set the desired signal for closed (C79), in-between (C80) and open (C81) positions.

0 = no indication, 1 = fixed light and 2 = flashing light.

Relay function for output 1 (C83)

Contact function on output 1 can be inverted to achieve either a shutting-off or breaking contact. The default value is a shutting-off relay function.

Additional card for radio receiver

General description

On EP103 there is a contact for connecting radio receiver cards or radio receiver bases. The programme is prepared for controlling 1-channel radio receivers. For technical data and connection, see instructions for use for additional cards.

Commissioning and functional description

Setting the function for radio receivers (C67)

In channel C67 there are different alternative as to how the radio can control. See chapter "Channel list". Alternative 3 (opening of both motors) is recommended for use together with automatic closing. According to valid directives is dead-man contact not allowed on radio controls (channel C67 is not valid if channel C33 in set to dead-man contact).

Explanation to programmable alternatives

Open/Stop/Close. Opens respectively closes in the different end positions. When operating in an opening direction, the door stops and on a new command changes direction within five seconds to closing

Open/Close. Opens respectively closes in the different end positions. On priority open, a closing can be stopped by a new command and the door will open.

Constant open, alternative 22. With an impulse the door opens and remains open when the automatic closing is shut off. To restore the automatic closing, an impulse is given for open or close.

Shutting off the opening function at certain times (C68)

With the help of programmable inputs the controlling from a radio receiver card can temporarily be shut off, e.g. at night. This can for example be done using a timer switch which is connected to one of the programmable inputs.

If this function is to be used, the programmable inputs must be shut off i.e. C61/C62 = 0.

Shutting off the opening function.

0 = Function is shut off. Normal opening function - (programmable input has no function for the radio receiver card).

1 = only opens on signal from programmable input 1.

2 = only opens on signal from programmable input 2.

Additional cards

Vehicle detector

General description

EP103 is prepared for connection of an additional card for a vehicle detector. The card has two different loop inputs which operate independently of each other and can be set separately. For technical data and connection, see instructions for use for vehicle detectors.

Commissioning and functional description

Installation of vehicle detector (d00)

In order for channels to DB312 to be visible, EP103 must be set for a vehicle detector. This is done by changing the value in d00.

If only loop 1 is used, d00 is set to 1.

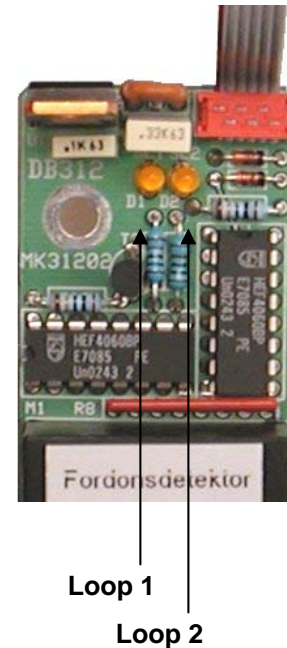
If only loop 2 is used, d00 is set to 2.

If both loops 1 and 2 are used, d00 is set to 3.

Indications on DB312

There are two yellow light diodes on the detector card, the left light diode indicates for loop 1 and the right for loop 2. If both loops are connected, then both light diodes flash quickly (nearly shimmer), which means that the detector card is active and is sending out frequency signals to both connected loops.

If only one of the loops is used then the respective light diode will light with a fixed shine instead of a shimmer.



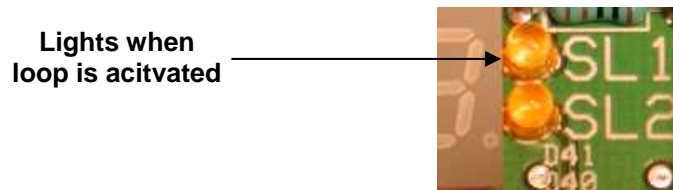
| LED status on DB312 | |
|---------------------|---|
| Off | Loop is broken or not connected*. |
| Flashes slowly | Loop connected but EP103 is not set for vehicle detector (d00). |
| Fixed light | One of loop inputs is active, OK. |
| Shimmer | Both loop inputs are active, OK. |

*Test of loop:

Check that the loop and entry lead are electrically unbroken, a series resistance of 0.5 Ohm is normal – more than 5 Ohms indicates poor contact. It is also important to check the loop's and entry lead's earth insulation. The resistance to earth, measured at 500 Volts, should be larger than 10 Mega-Ohms (normally 500 Mega-Ohms). For a read-out of measured value for the loop, see next page.

Indications on EP103

There are also two light diodes on the control card EP103. These shine when respective loop is actuated. SL1 = Loop 1 and SL2 = Loop 2.



Additional cards

Measured value for loop (d03 – d06)

The channels d01 – d06 are readout channels for checking the measured value from the loops. These are measured values which cannot be changed. See channel list for more information on what the channels contain.

Check of measured value for loops:

1. Read d03 and d04. The total measured value should lie between 8000 – 50000 units. If it is not within this interval the loop is broken or wrongly implemented.
(For loop 2: d05 and d06).
2. If both loop inputs are used the value between loop 1 and 2 must differ by at least 1000, there is otherwise a risk that the loops will affect each other. The difference is achieved by connecting the loop with the largest circumferences to input SL1 on the detector card.

| Loop 1 Total value = d03 + d04 | Loop 2 Total value = d05 + d06 |
|--|---|
| d03 = Measured value in single unit d04 = Measured value in thousands | d05 = Measured value in one unit d06 = Measured value in thousands |

Power on limit (d31/d32)

When commissioning, the power on limit must be set for the detector. The default value for power on is normally set by DAAB to 15 units. The value can be adjusted for the current loop. Check below first, how much the type of vehicle will influence the loop. The channels in the example below are for loop 1, for setting loop 2 use d06 + d05 and d32 instead.

Vehicle influence:

1. Check that there is no vehicle in the vicinity of the loop.
2. Set the door to open position. Read d04 and d03 to note the value: _____
3. Drive the vehicle in question onto the loop.
4. Now read d04 and d03 again, note the value: _____
The difference between the values is the influence of the vehicle.
5. Step to d31 to set the detectors power on limit with the help of the measured influence. It is important that the operating limit is set so that it safely exceeds the affect on the loop.

Difference between on and off (d33/d34)

The channel is changed most often when the loop is used for lorry traffic. Between the lorry and trailer there is a risk that the detector releases due to lower activation. The gate can then begin closing even though the entire vehicle has not passed through. With the difference correctly set there is smaller risk of the detector releasing. The default value for power on is normally set by DAAB to 3 units.

E.g. If the operating limit is set to 20 and the difference to 3, then the detector will engage at 20 units and release at 17 units.

Resetting of presence (d35 – d38)

A time for resetting of presence up to 240 minutes can be set in d35/d36. The affect from a vehicle is zeroed according to the time set. If the presence time is set to zero, the function is shut off and presence is never reset. To achieve a quick reset of presence (less than 1 minute) channel d37/d38 is used instead. It is always the lowest set time which is valid.

Safety (d40)

With the function safety set, no closing occurs as long as the loop is actuated (i.e. the vehicle is on the loop).

For example: If the door is closing and a vehicle drives onto the loop, the door opens instead of continuing to close.

0 = Shut off, 1 = Safety only SL1, 2 = Safety only SL2, 3 = Safety S1 and SL2.

Additional cards

Safety during overrun time (d41)

The overrun time following a passed limit position switch closed can be set in channel C87/C88. The function safety can be shut off during overrun for one or both loops. d41 is normally set for safety for both loops during overrun time.

Problems with the door affecting measured result (d81 - d84)

If the loop lies close to the door, there is the risk that the door leaf can affect the measured result. This can be checked by reading the difference between the open and closed positions.

The affect from the door:

1. Check that there is no vehicle in the vicinity of the loop.
2. Move the door to closed position and then to open position.
3. With the door in open position, read the value in d03 (or d05 for loop 2). Note the value and start the closing.
4. With the door in closed position, read the value in d03 once again. Check if the value differs between open and closed positions.
5. If the value differs more than three units, then this difference must be set in d81, d82, d83 or d84. See below which channel is to be changed.

By closing one door leaf at a time, for a more precise setting, it can be seen how much each individual door leaf affects the measured result. This is done by breaking the limit position connection for one of the motors.

Motor 1

1. Move the door to open position and read d03 (d05 for SL2). Note the value.
2. Loosen the connection wires on terminal no. 16 (limit position breaker for motor 2).
3. Close the door and read d03 again (d05 for SL2).
4. Set the difference in d81 (d82 for SL2).
5. Move the door to open position and connect the connection wire again to terminal no. 16.

Motor 2

1. Make sure the door is in open position and read d03 (d05 for SL2). Note the value.
2. Loosen the connection wires on terminal no. 13 (limit position breaker for motor 1).
3. Close the door and read d03 again (d05 for SL2).
4. Set the difference in d83 (d84 for SL2).
5. Move the door to open position and connect the connection wire again to terminal no. 13.

| No.: | Description | Value | Start |
|------|--|-------|-------|
| d81 | Compensation for affect from door leaf motor 1 on loop 1 in closed position. | 00-50 | 3 |
| d82 | Compensation for affect from door leaf motor 1 on loop 2 in closed position. | 00-50 | 3 |
| d83 | Compensation for affect from door leaf motor 2 on loop 1 in closed position. | 00-50 | 3 |
| d84 | Compensation for affect from door leaf motor 2 on loop 2 in closed position. | 00-50 | 3 |

Opening function (d61/d62)

When a loop is actuated there are different alternatives for the opening function, these can also be combined with safety (d40). Channel d61 is used for loop 1 and d62 for loop 2.

| No.: | Description |
|------|--|
| 0 | Shut |
| 1 | Open door leaf 1 |
| 2 | Open door leaf 2 |
| 3 | Open door leaves 1 and 2. |
| 4 | Limited opening of door leaf 1 (set time in C59) |
| 5 | Limited opening of door leaf 2 (set time in C60) |
| 6 | Limited opening of door leaves 1 and 2 (set times in C59 and C60). |

Additional cards

Type of opening signal (d63/d64)

For an actuated opening loop it is optional as to whether the vehicle detector should emit an impulse when the loop is actuated or if it should emit a fixed signal as long as the loop is actuated. The default value is impulse and can be changed in channel d63/d64.

Loop closing (d50)

The function sees to it that the automatic closing time count does not start until the photocell/loop has been passed by a vehicle.

If loop 1 is used for loop closing then d50 should be set to 1.

If loop 2 is used for loop closing then d50 should be set to 2.

If both loops 1 and 2 are used for loop closing then d50 should be set to 3.

For setting of times and functions, see respective chapter for road barriers, gates, folding doors or sectional overhead doors.

Shutting off the opening function at certain times (d65/d66)

With the help of programmable inputs on EP103, the opening function can temporarily be shut off by the loops, e.g. at night. This can for example be done using a timer which is connected to one of the programmable inputs. If a vehicle is parked on the loop during the night and remains there until the timer connects the opening function again, the door will open immediately.

If this function is to be used, the programmable input should be shut off i.e. C61/C62 = 0. The setting for loop 1 is changed in d65 (C61 = 0) and for loop 2 in d66 (C62 = 0).

Another example can be that the card reader only operates when a vehicle is standing on the loop. Neither the card reader nor the loop should be able to give an opening signal by themselves, both must be actuated simultaneously.

For example: A vehicle on the loop which activates the card reader will open the whole gate.

Shut off the opening function.

0 = Function is shut off. Normal opening function - (programmable input has no function for the loop).

1 = opening function on the loop on a signal only, programmable input 1.

2 = opening function on the loop on a signal only, programmable input 2.

Delayed opening (d67/d68)

For problems with unwanted opening from vehicles passing by, an optional time between 0.0 – 9.9 seconds can be set in d67/d68. The time set is that time which the loop must be actuated in order for opening to occur. Channel d67 is used for loop 1 and d68 for loop 2.

Interlock (d71/d72)

Opening of a Interlock with a loop can be used if two EP103's communicate with each other. When the loop is actuated, the Interlock opens. See chapter on Interlock/Communication. Channel d71 is used for loop 1 and d72 for loop 2. 0 = Shut, 1 = Opening of Interlock using loop. In order for the automatic control to forward the opening signal, alternatives 1- 6 must be set in d61/d62.

Additional cards

Presence detection and direction sensing (d91)

To receive a signal from DAAB's vehicle detector, it is required that one output card be assembled on EP103. The function is set in d91. The alternatives 1- 8 are set for presence detection and 9 – 14 for direction sensing. The signal can either come from loop 1 or 2 on DB312 or from the photocell input (FC/SL) on EP103. The function can be used for entry and exit from e.g. a car wash.

To receive signals from output 1 on the output card, C78 must be set to 4. The contact function can be inverted to either shutting off or breaking contact. The default value is shutting off and can be changed in C83.

Presence detection

| Choice | Explanation |
|--------|--|
| 01 | Presence detection. Signal when SL1 is actuated. Signal remains until SL1 is inactuated again. |
| 02 | Presence detection. Signal when SL2 is actuated. Signal remains until SL2 is inactuated again. |
| 03 | Presence detection. Signal when both SL1 and SL2 are actuated. Signal remains until either SL1 or SL2 are inactuated again. |
| 04 | Presence detection. Signal when FC is actuated. Signal remains until FC is inactuated again. |
| 05 | Presence detection. Signal when both FC and SL1 are actuated. Signal remains until either FC or SL1 are inactuated again. |
| 06 | Presence detection. Signal when both FC and SL2 are actuated. Signal remains until either FC or SL2 are inactuated again. |
| 07 | Presence detection. Signal when FC, SL1 and SL2 are actuated. Signal remains until FC, SL1 or SL2 are inactuated again. |
| 08 | Presence detection. Signal when either SL1 or SL2 are actuated. Signal remains until either SL1 or SL2 are inactuated again. |

Direction sensing

| Choice | Explanation |
|--------|---|
| 09 | Direction sensing. Signal when first SL1 and then SL2 are actuated. Signal remains until SL2 is inactuated again. |
| 10 | Direction sensing. Signal when first SL1 and then FC are actuated. Signal remains until FC is inactuated again. |
| 11 | Direction sensing. Signal when first SL2 and then SL1 are actuated. Signal remains until SL1 is inactuated again. |
| 12 | Direction sensing. Signal when first SL2 and then FC are actuated. Signal remains until FC is inactuated again. |
| 13 | Direction sensing. Signal when first FC and then SL1 are actuated. Signal remains until SL1 is inactuated again. |
| 14 | Direction sensing. Signal when first FC and then SL2 are actuated. Signal remains until SL2 is inactuated again. |

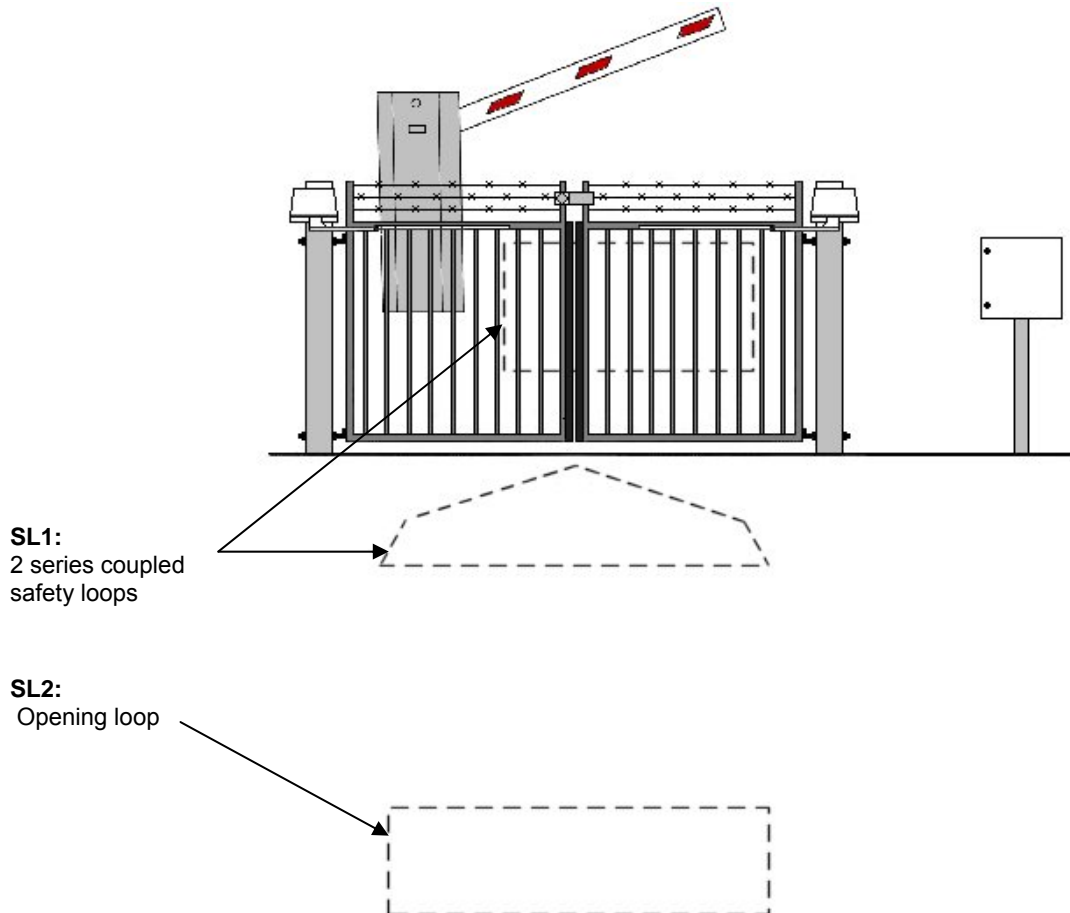
Additional cards

Gate and road barrier with coordinating safety loops

Function: Neither the gate nor the road barrier may close as long as there is a vehicle on any of the safety loops.

Both safety loops are coupled in series via the NC-terminal to SL1 on DB312 in the gate's control cabinet. An output card is also mounted on the gate's automatic control when output 1 is connected to the FC/SL-input (terminal nos. 28, 29) on the road barrier's automatic control.

Other functions can be achieved depending on the setting. See channel list.



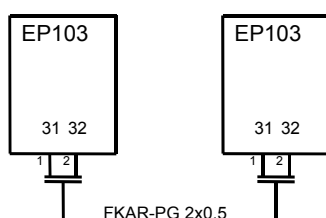
Interlock function/Communication

Interlock function/Communication

General description

Two EP103:s can communicate with each other, send interlocking signals and start signals between the doors. In order for functions between doors to operate, the same programme version must be used in both automatic controls. Commissioning and functional tests of doors should first be performed locally on both doors according to the commissioning section, before the controlling parameters and interlocking signals between the doors are set.

For connection, see section "Connection Instructions"



Communication C95

In order for signals and values to be sent from one EP103 to another EP103, C95 must be set. The automatic controls with value 1 start immediately sending values to no. 2, which then answers by sending the value back. When C95 = 0, communication is shut off. As soon as a value other than 0 is set, communication starts. If communication does not work, an error message is shown on the display. **E14** = Error in communication, external unit does not answer. The error message is shown as long as the communication does not work and will continue to be shown until both the automatic controls are set. An error message will also be shown if one of the automatic controls is dead. An error message will disappear when the next button is pressed.

Setting

- Door 1, C95 = 1
- Door 2, C95 = 2

Current channels for Interlock, blocking

Communication (C95)

Number in circuit for communication (1 or 2).

Blocking of another door (C64)

- 0 = No blocking.
- 1 = Blocking of open until the other door is closed.
- 2 = Blocking of open until the other door is open.
- 3 = Blocking of close until the other door is closed.

Open memory, cancel blocking with stop (C65)

When Interlock and blocking functions between two doors are used, these are controlled by a programmable input. Open memory means that the remote door remembers the open signal sent even if it must remain closed until the local door has reached an open position, the function open memory is set in C65.

- 0 = Does not remember open and stop, does not cancel blocking*.
- 1 = Remembers open and stop, does not cancel blocking*.
- 2 = Does not remember open and stop, cancels blocking*.
- 3 = Remembers open and stop, cancels blocking*.

**If the stop circuit is broken for longer than 5 seconds, the blocking is shut off.*

Interlock function/Communication

Open two doors simultaneously

If two doors close by each other are to be opened simultaneously, a programmable input is actuated with a Interlock opening setting. C61/C62 = 16, the doors can be controlled by a programmable input.

Avoid draughts in premises with two doors

Doors can be blocked for problems with draughts so that only one door can be opened at a time. The door may not be opened before the other coordinated door is closed. The program remembers the latest opening control, so that if the door it not allowed to open due to the other door being opened or being open, the door will open when the other has closed. The "remember open" function can be shut off in C65. It is suitable to use light indication when only one door at a time is to open. An output card for indication is available as additional automatic control.

Setting

- At door 1, C64 = 1.
- At door 2, C64 = 1.

Constant open

See section on Constant open below on this page.

Warm Interlock

The function warm Interlock means that only one door may open at a time. A signal opens first one door which then closes whereby the second door automatically opens and then closes. The door may not be opened before the other coordinated door is closed. The programme remembers the latest opening control, so that if the door it not allowed to open due to the other door being opened or being open, the door will open when the other has closed. The "remember open" function can be shut off in C65.

Setting

- At door 1, C64 = 1.
- At door 2, C64 = 1.
- C61/C62 = 16, the Interlock can be controlled by a programmable input.
- C49/C50 = suitable automatic closing time.

Constant open

To hold one or both doors open, for example in order to transport long goods or during summertime. This can be done using different alternatives as well as different functions. One alternative is to press a stop key. If the stop circuit is broken for longer than 5 seconds, the Interlock's blocking is shut off and remains shut as long as the stop key is held down. The blocking is reset as soon as the stop key is released. This alternative can be removed in C65. Another alternative is to lay a fixed signal on a programmable input and set a Constant open function.

| | |
|-----------------------|---|
| For example: C61 = 19 | Blocking is shut off, the doors move irrespective of each other. |
| C61 = 20 | Blocking is shut off, the doors move irrespective of each other. Opens a local door. Automatic closing shut off on local door. |
| C61 = 21 | Blocking is shut off, the doors move irrespective of each other. Opens both local door and remote door. Automatic closing is shut off on both local door and remote door. |

Interlock function/Communication

Gate and barrier in coordination

A barrier can open and close quickly but has low security against entries. The gate has high security against entries but takes longer time to open and close. By combining both, a high security can be achieved while quick entries are still allowed. It is suitable to use warning lights for a Interlock. An output card for a traffic light is available as an additional automatic control.

Setting

- On the barrier C64 = 2, road barrier cannot open before the gate is open.
- On the gate C64 = 3, gate cannot close before road barrier is closed.
- C61/C62 = 16, the Interlock can be controlled by a programmable input.
- An automatic closing time must be set in C49 or C50.

The scenario is that when controlling programmable inputs, the gate opens first. When the gate is open, the road barrier opens and passage can occur. Following the downcounted automatic closing time, the road barrier closes first. When the road barrier is closed, the gate closes. The Interlock opening is complete.

Constant open

See section on Constant open below on this page.

Channel list

Channel list

The channel list is common for controlling type EP103-1 (one motor) and for controlling type EP103-2 (two motors).

Some channels are only used for controlling EP103-2, these are marked with an * in front of the channel number.

After channel C99 come d-channels for setting of the vehicle detector.

Measured value for reading and troubleshooting

| No.: | Description | Area of measurement |
|------|--|-----------------------|
| C00 | Service channel for service personnel only (random number) | 000-999 |
| C01 | Programme version | 0.00-9.99 |
| C02 | Mains voltage phase L1 (Accuracy of measurement + - 15 %) | 000 - 255 V |
| C03 | Voltage following stop circuit. | 00.0 – 30.0 V |
| C04 | Resistance safety buffer close 1 (KSS1). | 00.0 -10.0 kΩ |
| C05 | Resistance safety buffer close 2 (KSS2). | 00.0 -10.0 kΩ |
| C06 | Resistance safety buffer open (KSÖ). | 00.0 -10.0 kΩ |
| C07 | Capacity Motor 1. | 0.00 – 1.99 kW. |
| *C08 | Capacity Motor 2. | 0.00 – 1.99 kW. |
| C09 | Motor current Motor 1. | 0.0 – 5.0 A |
| *C10 | Motor current Motor 2. | 0.0 – 5.0 A |
| C11 | Operation time Motor 1. | 000 – 999 sec. |
| *C12 | Operation time Motor 2. | 000 – 999 sec. |
| C13 | Time motor 1 opens from closed position. Used to limit opening of motor 1. | 0.00 – 99.9 sec, |
| C14 | Number of openings x 1 (total no. openings = C15 + C14). | 000 – 999 times |
| C15 | Number of openings x 1000. | 000 – 999 times |
| C16 | Time motor 2 opens from closed position. Used to limit opening of motor 2. | 0.00 – 99.9 sec, |
| C17 | Power factor Motor 1. | 0.00 – 0.99 Cos φ |
| *C18 | Power factor Motor 2. | 0.00 – 0.99 Cos φ |
| C19 | Time count for automatic closing (C49/C50). | 0.00 – 9.59 min. sec. |
| C20 | Latest cause for motor stop. 1 = Limit position open (terminal nos. 14, 17). 2 = Limit position closed (terminal nos. 15, 18). 3 = Stopping device (terminal nos. 8, 10, 12). 4 = Photocell (terminal no. 29). | 1-4 |

Channel list

Commissioning, value to set when commissioning

| No.: | Description | Value | Start | Set |
|------|---|-----------------|-------|-----|
| C30 | Limit for load sensor motor 1. | 0.05 – 1.99 kW. | 0.40 | |
| *C31 | Limit for load sensor motor 2. | 0.05 – 1.99 kW. | 0.40 | |
| C32 | Limited operation time | 005 – 999 sec. | 005 | |
| C33 | Impulse/Dead-man contact 0 = Open and close dead-man contact (without load sensor) 1 = Open impulse, close dead-man contact 2 = Open dead-man contact, close impulse 3 = Open and close impulse. 4 = Open and close dead-man contact with connected load sensor. | 0-4 | 0 | |
| C34 | Type of power supply (used for load sensor). 0 = 3 x 400 V+N 1 = 3 x 230 V 2 = 1 x 230 V 3 = 3 x 400 V without N (modification of circuit board is necessary) | 0-3 | 0 | |
| C35 | Type of control. 0 = Standard 1 = Sectional overhead door with safety buffer signing. | 0-1 | 0 | |
| C36 | Type of Stop following overrun (channel is subordinate to C48, valid only for overrun in closing direction). 0 = Time 1 = Time or load sensor 2 = Time or safety buffer 3 = Time, load sensor or safety buffer | 0-3 | 3 | |

Delay of door leaf, magnetic lock

| No.: | Description | Value | Start | Set |
|------|--|------------------|-------|-----|
| *C38 | Time delay of open motor 2 and close motor 1 (used for magnetic lock or for overlap of door leaves). | 0.1 – 9.9 sec. | 0.1 | |
| C39 | Time delay when controlling previous to starting the first motor (used for magnetic lock so that the magnet will be able to lose remanence). | 0.00 – 0.99 sec. | 0.00 | |

Channel list

Safety buffer setting, function for load sensor, safety motor breaker, safety buffer

| No.: | Description | Value | Start | Set |
|------|---|------------------|-------|-----|
| C40 | Resistance value for safety buffer KSS1, 0 = buffer off. | 0.0 1,0 - 8,2 KΩ | 2.0 | |
| C41 | Resistance value for safety buffer KSS2, 0 = buffer off. | 0.0 1,0 - 8,2 KΩ | 2.0 | |
| C42 | Resistance value for safety buffer KSÖ, 0 = buffer off. | 0.0 1,0 - 8,2 KΩ | 0.0 | |
| C43 | Load sensor (value 0 only during service and fault finding). 0 = Disabled 1 = Reversing in closing, stop in opening. 2 = Stop in closing, reversing in opening. 3 = Reversing in closing and opening. 4 = Stop in closing and opening. | 0-4 | 3 | |
| C44 | Limit for motor protection, motor 1. | 0.5 – 4.0 A | 1.4 | |
| *C45 | Limit for motor protection, motor 2. | 0.5 – 4.0 A | 1.4 | |
| C46 | Dead-man control-closing when broken or actuated KSS, KSÖ, FC/SL, SL1 or SL2. 0 = Shut off, can not be closed. 1 = Can be closed. | 0-1 | 1 | |
| C47 | Safety buffer function 1 = Reversing in closing, stop in opening. 2 = Stop in closing, reversing in opening. 3 = Reversing in closing and opening. 4 = Stop in closing and opening. | 1-4 | 3 | |
| C48 | Safety buffer reversing <u>during overrun time</u> (C87, C88) 0 = The function is shut off (no safety buffer reversing during overrun time). 1 = Safety buffer reversing during overrun time. 2 = safety buffer reversing during overrun time <u>as well as for set time</u> in C92. | 0-2 | 0 | |

Automatic closing and FC/SL closing

| No.: | Description | Value | Start | Set |
|------|---|-------------------------------|-------|-----|
| C49 | Short time for automatic closing (for a shorter time than 0.8 C92 must also be changed). | 0.0 0.1 - 9.9 sec. | 0.0 | |
| C50 | Time for automatic closing. | 0.00 – 9.59 min. sec. | 0.00 | |
| C51 | Max. time open during closing with FC/SL, SL1 and SL2. Set time = Closing with FC/SL. 0 = No closing with FC/SL. | 0.00 – 9.59 min. sec. | 0.00 | |
| C52 | Time for blocking of automatic closing, following activation of stop key. 0 = No automatic control. Closing after stop. | 0.00 0.20 – 9.59 min. sec. | 0.00 | |
| C54 | Closing with FC/SL, SL1 and SL2. 0 = Close directly when FC/SL, SL1 or SL2 are inactivated. 1 = First open completely and then closed. | 0 = direct 1 = fully open | 1 | |
| C55 | Function of FC/SL, SL1 and SL2 during closing direction. 1 = Reversing. 2 = Stop (with start of the automatic closing time). | 1-2 | 1 | |
| C56 | Start of countdown of automatic closing time for actuated FC/SL. 0 = Actuated FC/SL does <u>not</u> restart the automatic closing time. 1 = Actuated FC/SL restarts the automatic closing time. | 0-1 | 1 | |
| C57 | Function of FC/SL in opening direction. 0 = Shut off (FC/SL has no effect on opening direction). 1 = Stop with restart of the automatic closing time. 2 = Stop with restart of the automatic closing time according to C52). | 0-2 | 0 | |

Channel list

Programmable inputs, opening of Interlock, blocking, direction changing and radio function

| No.: | Description | Value | Start | Set |
|------|---|------------------|-------|-----|
| C59 | Time for limited opening of motor 1. | 0.00 – 99.9 sec, | 05.0 | |
| *C60 | Time for limited opening of motor 2. | 0.00 – 99.9 sec, | 05.0 | |
| C61 | Programmable input 1 (see list of functions below). | 00-22 | 00 | |
| C62 | Programmable input 2 (see list of functions below). | 00-22 | 00 | |
| C63 | Priority in direction changes 0 = None, 1 = Open, 2 = Close, 3 = Open and close. | 0-3 | 1 | |
| C64 | Interlock with another door. 0 = No interlock. 1 = Blocking of open until the other door is closed. 2 = Blocking of open until the other door is open. 3 = Blocking of close until the other door is closed. | 0-3 | 0 | |
| C65 | Interlock with "Open" memory. Remove Interlock with stop. 0 = Does not remember open, interlock is not removed with stop. 1 = Remembers open. Interlock is not removed with stop. 2 = Does not remember open. Interlock is removed with stop. 3 = Remembers open and stop cancels blocking. | 0-3 | 3 | |
| C67 | Programmable radio key 1 (see list of functions below). | 00-16, 22 | 03 | |
| C68 | Shut off opening function for internal radio card. 0 = Function is shut off. Normal opening function. (programme input has no function for radio card), 1 = Opening only on signal from programmable input 1. 2 = Opening only on signal from programmable input 2. | 0-2 | 0 | |

Functions for programmable inputs and radio keys

| Choice | Explanation |
|--------|--|
| 00 | Input shut off. |
| 01 | Opening of door leaf 1 only. |
| *02 | Opening of door leaf 2 only. |
| 03 | Opening of both door leaf 1 and 2. |
| 04 | Limited opening of door leaf 1 (set time in C59) |
| *05 | Limited opening of door leaf 2 (set time in C60) |
| 06 | Limited opening of door leaves 1 and 2 (set times in C59 and C60). |
| 07 | Open/Stop/Close door leaf 1 only. |
| *08 | Open/Stop/Close door leaf 2 only. |
| 09 | Open/Stop/Close both door leaf 1 and 2. |
| 10 | Open/Close door leaf 1 only. |
| *11 | Open/Close door leaf 2 only. |
| 12 | Open/Close both door leaf 1 and 2. |
| 13 | Limited Open/Close of door leaf 1 only. Set time in C59. |
| *14 | Limited Open/Close of door leaf 2 only. Set time in C60. |
| 15 | Limited Open/Close of both door leaf 1 and 2. Set times in C59 and C60. |
| 16 | Interlock opening. Opens the door and the opening signal is forwarded. |
| 17 | Automatic closing turned off on fixed signal. |
| 18 | Automatic closing turned off and opens the door on fixed signal. (Timer opening) |
| 19 | Blocking turned off (C64) on both local door and remote door on fixed signal. |
| 20 | Automatic closing turned off on local door. Blocking turned off (C64) on both local door and remote door and opens local port on fixed signal. |
| 21 | Automatic closing turned off on both local door and remote door. Blocking turned off (C64) on both local door and remote door and opens both local door and remote door on fixed signal. |
| 22 | Constant open. Automatic closing turned off, opens the door. Restored by another controlling signal. |

Channel list

Indications for output cards

| No.: | Description | Value | Start | Set |
|------|--|-------|-------|-----|
| C70 | Output card 0 = None, 1 = Output card. 0 = Channels 71 -82 are not shown. 1 = Channels 71 – 82 are shown and cannot be set. | 0-1 | 0 | |

Function for output 2

| | | | | |
|-----|--|-----------------|----|--|
| C71 | Function output 2. 0 = Disabled. 1 = Traffic light (signal according to C72 – C74 and C76). 2 = Movement (signal according to C75 – C76). 3 = Position indication (signal according to C72 – C74). | 0-3 | 1 | |
| C72 | Signal closed position. 0 = Unlit, 1 = Fixed signal, 2 = Flash signal. Traffic light or position indication (C71 set to 1 or 3). | 0-2 | 1 | |
| C73 | Signal in-between position. 0 = Unlit, 1 = Fixed signal, 2 = Flash signal. Traffic light or position indication (C71 set to 1 or 3). | 0-2 | 1 | |
| C74 | Signal open position. 0 = Unlit, 1 = Fixed signal, 2 = Flash signal. Traffic light or position indication (C71 set to 1 or 3). | 0-2 | 0 | |
| C75 | Movement signal (C71 must be set at 2). 0 = Unlit, 1 = Fixed signal, 2 = Flash signal. | 0-2 | 2 | |
| C76 | Forewarning input 2 (can be combined with traffic or movement). (Automatic opening: C61/C62 = 18). 0 = Disabled. 5 = Fixed before automatic opening signals and closing signals. 2 = Flash before automatic opening signals and closing signals. 3 = Fixed before closing signals, automatic opening and automatic closing. 3 = Flash before closing signals, automatic opening and automatic closing. 5 = Fixed before opening signals, closing signals, automatic opening and closing. 6 = Flash before opening signals, closing signals, automatic opening and closing. | 0-6 | 0 | |
| C77 | Forewarning time (for setting of C76). | 00 – 99 sec. | 03 | |

Function for output 1

| | | | | |
|-----|--|-----|---|--|
| C78 | Function output 1. 0 = Disabled. 1 = Traffic light (signal according to C79 – C81). 2 = Alarm output (broken safety buffer). 3 = Position indication (signal according to C79 – C81). 4 = Presence detection or direction sensing (signal according to d91). | 0-4 | 1 | |
| C79 | Signal closed position. 0 = Unlit, 1 = Fixed signal, 2 = Flash signal. Traffic light or position indication (C78 set to 1 or 3). | 0-2 | 0 | |
| C80 | Signal in-between position. 0 = Unlit, 1 = Fixed signal, 2 = Flash signal. Traffic light or position indication (C78 set to 1 or 3). | 0-2 | 0 | |
| C81 | Signal open position. 0 = Unlit, 1 = Fixed signal, 2 = Flash signal. Traffic light or position indication (C78 set to 1 or 3). | 0-2 | 1 | |

Settings for output 1 and output 2

| | | | | |
|-----|------------------|----------------|-----|--|
| C82 | Flash frequency. | 0.1 – 2.0 sec. | 0.5 | |
|-----|------------------|----------------|-----|--|

Relay function for output 1

| | | | | |
|-----|---|-----|---|--|
| C83 | Inversion of contact function for output 1. 1 = Making (NO), 2 = Breaking function (NC). | 1-2 | 1 | |
|-----|---|-----|---|--|

Channel list

Time delays

| No.: | Description | Value | Start | Set |
|------|---|-----------------------|-------|-----|
| C84 | Over runtime after limit position open, motor 1. | 0.00 – 4.99 sec. | 0.00 | |
| *C85 | Over runtime after limit position open, motor 2. | 0.00 – 4.99 sec. | 0.00 | |
| C86 | Closed unloading. Time for opening of motor following closed. | 00 15–30 millisec. | 00 | |
| C87 | Over runtime after limit position closed, motor 1. | 0.00 – 4.99 sec. | 0.00 | |
| *C88 | Over runtime after limit position closed, motor 2. | 0.00 – 4.99 sec. | 0.00 | |
| C89 | Delay of load sensor. | 0.01 – 2.99 sec. | 0.06 | |
| C90 | Time for disengaging of load sensor during start. Applies for all starts (control signals and reversing). | 0.1 – 5.0 sec. | 0.5 | |
| C91 | Delay of motor protection. | 0.1 – 5.0 sec. | 1.0 | |
| C92 | Delay of direction changing for actuated FC/SL, open or close (the channel applies also for time setting for alternative 2 in channel C48). | 0.1 – 4.0 sec. | 0.8 | |
| C93 | Delay of reversing for actuated safety buffer or load sensor. | 0.03 – 2.00 sec. | 0.10 | |
| C94 | Reversing time for sensor in opened movement (KSÖ and load sensor). | 0.1 – 2.0 sec. | 1.0 | |

Communication, special

| No.: | Description | Value | Start | Set |
|------|---|-------|-------|-----|
| C95 | Number in circuit for communication, 00 = Disabled. | 00-16 | 00 | |
| C99 | Service channel for service personnel only. | 00-99 | 00 | |

Channel list

Channel list for vehicle detector

The vehicle detector has its own d-channel to make setting easier. The channels are visible first when d00 is set.

Channels for settings of detector card

| No.: | Description | Value | Start | Set |
|------|--|-------|-------|-----|
| d00 | 0 = Measurement Disabled (d-channel not shown). 1 = Only loop 1 is used. 2 = Only loop 2 is used. 3 = Both loops 1 and 2 is used. | 0-3 | 0 | |

Measured values for readouts

| No.: | Description | Area of measurement |
|------|---|---------------------|
| d01 | Affection from vehicle on loop 1. | 000-999 |
| d02 | Affection from vehicle on loop 2. | 000-999 |
| d03 | Measured value loop 1 (total measured value = d03 + d04). | 000-999 |
| d04 | Measured value loop 1 x 1000. | 00-99 |
| d05 | Measured value loop 2 (total measured value = d05 + d06). | 000-999 |
| d06 | Measured value loop 2 x 1000. | 00-99 |

Sensitivity, power on and power off limits

| No.: | Description | Value | Start | Set |
|------|--|----------------|-------|-----|
| d31 | Limit for detection of vehicle on loop 1. | 005-099 | 015 | |
| d32 | Limit for detection of vehicle on loop 2. | 005-099 | 015 | |
| d33 | Difference between power on and power off on loop 1. | 000-050 | 003 | |
| d34 | Difference between power on and power off on loop 2. | 000-050 | 003 | |
| d35 | Resetting of presence loop 1, 0 = Disabled. | 005 - 240 min. | 120 | |
| d36 | Resetting of presence loop 2, 0 = Disabled. | 005 - 240 min. | 120 | |
| d37 | <u>Quick</u> resetting of presence loop 1, 0 = Disabled. | 00 – 99 sec. | 00 | |
| d38 | <u>Quick</u> resetting of presence loop 2, 0 = Disabled. | 00 – 99 sec. | 00 | |

Safety

| No.: | Description | Value | Start | Set |
|------|--|-------|-------|-----|
| d40 | 0 = Disabled. 1 = Safety only on loop 1. 2 = Safety only on loop 2. 3 = Safety on both loops 1 and 2. | 0-3 | 3 | |
| d41 | <u>Safety during overrun time.</u> 0 = Disabled. 1 = Safety on loop 1. 2 = Safety loop 1. 3 = Safety both loops 1 and 2. | 0-3 | 3 | |

Loop closing

| No.: | Description | Value | Start | Set |
|------|---|-------|-------|-----|
| d50 | 0 = Disabled. 1 = Loop closing only on loop 1. 2 = Loop closing only on loop 2. 3 = Loop closing both loops 1 and 2. | 0-3 | 0 | |

Channel list

Opening function

| No.: | Description | Value | Start | Set |
|------|--|-------|-------|-----|
| d61 | Function for loop 1 (see table below). | 0-6 | 0 | |
| d62 | Function for loop 2 (see table below). | 0-6 | 0 | |

| No.: | Description |
|------|--|
| 0 | Shut |
| 1 | Open door leaf 1 |
| 2 | Open door leaf 2 |
| 3 | Open door leaves 1 and 2. |
| 4 | Limited opening of door leaf 1 (time set in C59) |
| 5 | Limited opening of door leaf 2 (time set in C60) |
| 6 | Limited opening of door leaves 1 and 2 (times set in C59 and C60). |

Type of opening signal

| No.: | Description | Value | Start | Set |
|------|--|-------|-------|-----|
| d63 | Type of opening signal for actuated loop 1. 0 = Impulse. 1 = Signal as long as loop is actuated. | 0-1 | 0 | |
| d64 | Type of opening signal for actuated loop 2. 0 = Impulse. 1 = Signal as long as loop is actuated. | 0-1 | 0 | |

Disable opening function certain times with programmable input

| No.: | Description | Value | Start | Set |
|------|--|-------|-------|-----|
| d65 | Disabled the opening function SL1. 0 = Function is Disabled. Normal opening function. (programme input has no function for loop), 1 = Opening only on signal from programmable input 1. 2 = Opening only on signal from programmable input 2. | 0-2 | 0 | |
| d66 | Disabled the opening function SL2. 0 = Function is Disabled. Normal opening function. (programme input has no function for loop), 1 = Only opening function on loop on signal from programmable input 1. 2 = Only opening function on loop on signal from programmable input 2. | 0-2 | 0 | |

Delayed opening

| No.: | Description | Value | Start | Set |
|------|--|----------------|-------|-----|
| d67 | Delayed opening of loop 1. 0 = Disabled. Set time = Delay of opening function. | 0.0 – 9.9 sec, | 0.0 | |
| d68 | Delayed opening of loop 2. 0 = Disabled. Set time = Delay of opening function. | 0.0 – 9.9 sec, | 0.0 | |

Opening of Interlock

| No.: | Description | Value | Start | Set |
|------|--|-------|-------|-----|
| d71 | 0 = Disabled. 1 = Opening of Interlock with loop 1. | 0-1 | 0 | |
| d72 | 0 = Disabled. 1 = Opening of Interlock with loop 2. | 0-1 | 0 | |

Channel list

Problem of the door affecting the closing measured value

| No.: | Description | Value | Start | Set |
|------|--|-------|-------|-----|
| d81 | Compensation for affect from door leaf motor 1 on loop 1 in closed position. | 00-50 | 3 | |
| d82 | Compensation for affect from door leaf motor 1 on loop 2 in closed position. | 00-50 | 3 | |
| *d83 | Compensation for affect from door leaf motor 2 on loop 1 in closed position. | 00-50 | 3 | |
| *d84 | Compensation for affect from door leaf motor 2 on loop 2 in closed position. | 00-50 | 3 | |

Presence detection and direction sensing

| No.: | Description | Value | Start | Set |
|------|---|-------|-------|-----|
| d91 | Function when SL1, SL2 or Photocell is actuated. See table below: | 0-14 | 1 | |

| Choice | Explanation |
|--------|---|
| 01 | Presence detection. Signal when SL1 is actuated. Signal remains until SL1 is inactuated again. |
| 02 | Presence detection. Signal when SL2 is actuated. Signal remains until SL2 is inactuated again. |
| 03 | Presence detection. Signal when both SL1 and SL2 are actuated. Signal remains until either SL1 or SL2 are inactuated again. |
| 04 | Presence detection. Signal when FC is actuated. Signal remains until FC is inactuated again. |
| 05 | Presence detection. Signal when both FC and SL1 are actuated. Signal remains until either FC or SL1 are inactuated again. |
| 06 | Presence detection. Signal when both FC and SL2 are actuated. Signal remains until either FC or SL2 are inactuated again. |
| 07 | Presence detection. Signal when FC, SL1 and SL2 are actuated. Signal remains until either FC, SL1 or SL2 is inactuated again. |
| 08 | Presence detection. Signal when either SL1 or SL2 are actuated. Signal remains until either SL1 or SL2 are inactuated again. |
| 09 | Direction sensing. Signal when both SL1 and SL2 are actuated. Signal remains until SL2 is inactuated again. |
| 10 | Direction sensing. Signal when both SL1 and FC are actuated. Signal remains until FC is inactuated again. |
| 11 | Direction sensing. Signal when both SL2 and then SL1 are actuated. Signal remains until SL1 is inactuated again. |
| 12 | Direction sensing. Signal when first SL2 and then FC are actuated. Signal remains until FC is inactuated again. |
| 13 | Direction sensing. Signal when first FC and then SL1 are actuated. Signal remains until SL1 is inactuated again. |
| 14 | Direction sensing. Signal when first FC and then SL2 are actuated. Signal remains until SL2 is inactuated again. |

Service/Troubleshooting

Service/Troubleshooting

| Error | Possible cause, hints |
|--|--|
| Error messages on the display EXX | See the section on error messages. |
| The door reverses and the red light diodes M1/M2 flashes? | Is the load sensor assembled correctly? C30/C31 Correct power supply set in C34? Mechanical fault? Does the door run easily when free coupled? |
| Are the red light diodes KSS1, KSS2 or KSÖ shining or flashing? | Read the channels C04 – C06. Is the resistance correct? Eventual adjustment of safety buffer switch? Does KSÖ exit in practise? Is C42 set? Are any of the light diodes lit for limit positions? If the limit positions are not connected the safety buffer will not work either. Are the light diodes for STOP lit? If the stop circuit is not whole during power on, then the safety buffer will not work either. |
| Opening or closing does not work. | Are all green light diodes lit? These should be lit. Are the unused stop inputs linked? Are ÖPPNA (open), STÄNG (close), PROG1 OR PROG2 lit? Should normally not be lit. An input is perhaps wrongly connected? Limit position diodes must light in order to operate. Ex. GÖ1 lights = can open motor 1. Limit positions lie in series with the stop circuits. Error/Break in an operating door contact or other stop circuit. Check that the forewarning is set in C76. Check if the blocking is set in C64. |
| Cannot be closed but can be opened. | FC/SL diode should light. Do KSS1 or KSS2 indicate? Should normally be unlit. Wrong connection of safety buffer suspected. Adjustment of the safety buffer cam may be required. |
| Misses automatic closing? | Is there too much play somewhere in the stop circuit? Operating door contact? Stopping device? Check setting in C52 (restart after stop). |
| Display and light diodes do not light. | Are all input phases present? There can be a short circuit to earth on one of the low voltage connections. Shut off main switch 1 min. and remove all jack terminals. Turn on main switch breaker again with the jackable terminals removed. |
| Must the control button be held down in order to operate? | Check that C33 is set to 3. Are the FC/SL light diodes lit? These should be lit. Is any KSS light diode lit? These should not be lit. Is SL1 or SL2 lit? Should only light if vehicle detector is used and the loop is actuated. |
| Does the door stop "on its own" without explanation? (No error message on the display or the right light diodes indicates). | Test drive the door again, both open and close. Also check in C20 which figure comes up when the door stops in order to find out the cause (see channel list, C20). |

Service/Troubleshooting

Error messages

To sign an error message, press on a button under the display. Message E04 and E05 requires that power on be broken.

Power on

When the power is on, the type of EP103 model in operation is shown in the display.

EP1=EP103-1 control for 1 motor **EP2**=EP103-2 controls 2 motors






| Error message | Meaning | Possible cause |
|---------------|---|---|
| E01 | Motor protection for motor 1 released. | The motor runs heavily or is phase-locked, test clutch. Broken fuse? |
| E02 | Safety motor breaker for motor 2 has released. | Phase break in an incoming phase? Break in cable to motor or motor winding? Is the correct motor protection limit set? (C44, C45). |
| E03 | Max. operation time exceeded. | Is the correct operation time set? (C32) Mechanical fault, belt has broken? |
| E04 | Safety test, error during self-test | Is the circuit for safety buffer, limit position or stop correctly connected? Is there any foreign voltage in the circuit? Is it necessary for the voltage to be broken to reset? |
| E05 | Unlawful operation. | The automatic control registers that the motor is on when it should be in power off position. Someone has force-operated the contactors. Is it necessary for the voltage to be broken to reset? |
| E06 | No power motor 1. | Electric motor uses less than 0.2 A: Phase break in an incoming phase? Broken fuse? |
| E07 | No power motor 2. | Break in cable to electric motor? Voltage drop in stop circuit/limit position circuit? (Causes the contactors to not be able to draw). |
| E08 | Short voltage drop, 24 V | Power loss. Short-lived short circuit at 24 V. |
| E09 | Watchdog for programme has released. | Strong disturbances, e.g. thunder |
| E10 | Timer monitor error. | Error on programme timer in the automatic control. |
| E11 | Repeated restarts of EP103. | Short circuit in circuit for limit position or stop? After measures, the automatic control does a new check after 20 seconds. |
| E12 | Memory error in programme circuit. | Requires change of programme circuit. |
| E13 | Programming error in circuit. | Requires change of programme circuit. |
| E14 | Communication error. External unit does not answer. | Correct polarity on communication cable? Break in communication cable? Correct setting on both automatic controls? (C95). Is voltage on in both external automatic controls? Reset by pressing on settings key. |
| E15 | Short-lived voltage drops of power supply. | Has there been a power failure? Reset by pressing on settings key. |
| E16 | Safety buffer not signed. | Applies only to sectional overhead door control. Mechanical error on safety buffer? Correct overrun time? (C87) |
| E17 | Safety buffer or load sensor has been actuated more than 5 times in succession. | Are there any obstructions which prevent the door from arriving at the closed position? |
| E18 | Error on Loop 1. | Is the loop or entry lead electrically broken? See instructions for use for vehicle detector for troubleshooting. |
| E19 | Error on Loop 2. | |
| E20 | High voltage in safety circuit. | Control panel measures more than 30VDC in the stop circuit. Internal fault– door may not start. |

Accessories





Accessories

DAAB Portteknik has a number of accessories for doors, gates and road barriers. Below is a selection, contact DAAB for more variations and more information about the products.

Automatic control panel and additional cards





| | |
|---|---|
|  | <p>Automatic control panel EP103-1</p> <p>Includes everything needed to ensure a safe way of controlling a door, gate or road barrier with 1 motor.</p> |
|  | <p>Automatic control panel EP103-2</p> <p>Includes everything needed to ensure a safe way of controlling a door, gate or road barrier with 2 motors.</p> |
|  | <p>Stabilised voltage aggregate SPD</p> <p>Used when 24 V DC-output on the automatic control panel is inadequate.</p> <p>IN: 230 V AC</p> <p>OUT: 24 V DC 1.25 A.</p> |
|  | <p>Automatic magnetic lock DB310</p> <p>Additional card for assembly on a DIN-rail, used on gates with electromagnetic locks. Handles automatic power on and power off of voltage to the magnet. For EP103</p> |
|  | <p>Radio receiver base DB311</p> <p>DB311 was developed for easy connection of a radio receiver intended for an 11-pole socket. For EP103</p> |

Accessories

| | |
|--|--|
|  A green printed circuit board (PCB) with a white label that reads "DB312". It features a red ribbon cable connector at the top, several electronic components, and a green terminal block at the bottom with four terminals. | <p>Vehicle detector DB312</p> <p>Magnetic loops cut into the asphalt are connected to this additional card which contains 2 separate inputs. E.g. 1 loop with safety function and 1 with an opening function. Safety loops are recommended if the gate is to be closed automatically on a set time. For EP103</p> |
|  A green PCB with a white label "DB313". It has a red ribbon cable connector at the top, a blue potentiometer, and a green terminal block at the bottom with four terminals. | <p>Output card DB313</p> <p>The card is an accessory for receiving signals from the automatic control panel in open and closed positions, among other things. Used for e.g. signal lights. For EP102 or EP103.</p> |
|  A green PCB with a black GSM module mounted on top. The module has a white label and a small antenna. A black cable is connected to the module. The PCB has a green terminal block at the bottom. | <p>GSM-module DB314</p> <p>A function for opening the door by calling a telephone number. No cost for the call.</p> |
|  A green PCB with a silver GSM module mounted on top. The module has a white label. The PCB has a green terminal block at the bottom. | <p>GMS-module T243-D</p> <p>GSM-opening as above, but with only "authorized" numbers being able to open the door. The system can be administered by sending an SMS to the GSM-module.</p> |



Accessories

Radio system DBR1

| | |
|---|---|
|  | <p>Hand remote DBR1</p> <p>Working frequency: 433.92 MHz. Hand transmitter with either 2 or 4 keys. Each transmitter transmits with a unique code each time the key is actuated. The transmitters are compatible with the receivers below.</p> |
|  | <p>Radio receiver DB317</p> <p>DK317 has 1 output for a control signal, the card is jacked directly onto the automatic control panel and the function settings are carried out on the control panel's display. Fits EP103. Max. 85 users.</p> |
|  | <p>Radio receiver DBR1-M4</p> <p>4-channel radio receiver for assembly on a DIN-rail. Also suitable for older control panels. Max. 85 users.</p> |
|  | <p>Radio receiver DBR1-M2</p> <p>2-channel radio receiver for assembly on a DIN-rail. Also suitable for older control panels. Max. 500 users. Individual remotes can be erased from the receiver's memory even if the transmitter has been lost.</p> |

Accessories

Accessories/Control devices

| | |
|--|---|
|  A grey plastic key switch box with a red pushbutton on top and a keyhole on the side. | <p>Key switch box</p> <p>Open with a key. Available in 8 different models, up to 3 pushbuttons in the front, 1-2 key functions, with or without lock on key switch. Weatherproof rating IP44. Prepared for ASSA's lock cylinder.</p> |
|  A silver card reader and code lock device with a numeric keypad and a card slot. | <p>Card reader/Code lock</p> <p>Open with touch-free card or by entering a code.</p> |
|  A white time switch device with a digital display showing '15:45' and several buttons. | <p>Time Switch</p> <p>Used to hold the door open during the day but can also be used to break the opening function on e.g. an opening loop. Yearly or weekly function.</p> |
|  A silver photocell sensor with a lens and a mounting bracket. | <p>Photocell</p> <p>Recommended for gates which are to be closed automatically at a set time.</p> |
|  A rotating warning light with an orange lens and a white base. | <p>Warning light</p> <p>Warns for closing gate or for a gate in movement. Available in many different models. Rotating light, flashing light, traffic light, etc.</p> |

Accessories



Battery backup

Accessory for doors which must either open or close regardless of power loss.



Frequency converter

Used to ramp up the motor during start and for winding down before closing position. 1-phase power supply is changed to 3-phase voltage for the motors. Adjustable acceleration and retardation times.