

Automatic sliding door record system 17

Application notes **E**

Survey

- AN 1** General: "New features of the record system 17"
- AN 2** Tool kit and auxiliary aids
- AN 3** BAT 17: Handling and storing of the ni/cd-accu-pack
- AN 4** Configuration STG 17 with BDE-E
- AN 5** Status and fault signals
- AN 6** Connection of 1 time switch for SUR-V ("locked") with BDE-M
- AN 7** Connection of a common sensor (radar) to 2 STG 17
- AN 8** Safety inputs SHE-EXT, SÖK, NSK

Information for installation and service personnel:

This document is intended to simplify use of the record system 17. It will be continuously supplemented with practical tips for installation, servicing and repair. For this, however, we are dependent on your practical experience, suggestions and ideas. Please send us these tips, so that we can add them to this document. Many thanks for your valued assistance.

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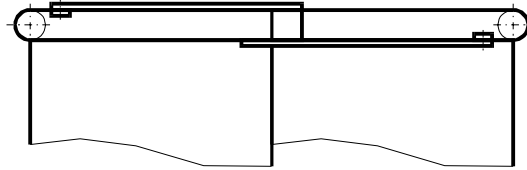
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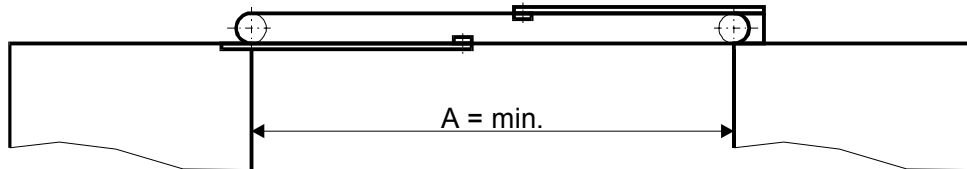
AN 1 General " New features of the record system STA 17"

The sliding door operator record 17 STA is based on the **slide bar principle**. With this type of drive the power is transmitted to the door leaves via a slide bar. One end of the slide bar is attached to the gear belt and the other end to the door leaf. It is thus possible to achieve opening widths of up to 2,000 mm, using the standard module length of 1,670 mm. In doing so, the slide bars 'push' the door leaves past the guide pulley support and drive unit respectively. The following drawings illustrate this principle, both with a narrow door leaf (A min.) and a wide door leaf (A max.). Please note that the module is the same length for both versions.

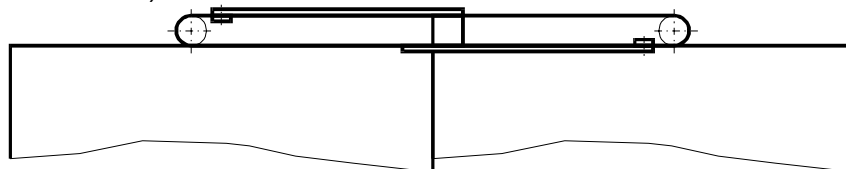
Door closed (narrow door leaf)



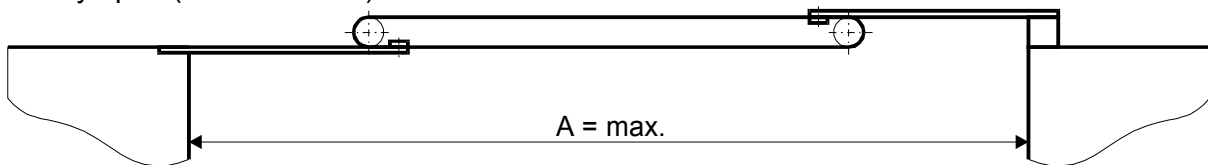
Door fully open (narrow door leaf)



Door closed (wide door leaf)



Door fully open (wide door leaf)



There are more innovative changes and advantages compared with the models STA 13 / 14 / 15 such as:

- The track and door leaves can be previously installed, so that the "hole in the wall" can be closed without having to install the drive module. This signifies **installation conforming with the building progress**, i.e. the drive module is only installed when the automatic door operator is required, shortly before commissioning and not during building work.
- The **drive module is assembled and tested at the factory**. This firstly increases the quality and reliability, while secondly reducing installation time on the spot.

- At the same time the connecting sections for the **side pieces** have also been revised, so that side pieces made at the factory are used. This further reduces erection time at the place of installation.
- The record system 17 now no longer requires **switch supports with limit switches**, if the optional locking (VRR) is not used. This simplifies handling, since the VRR can now be offered as a genuine option and no longer either as VRR or switch support.
- The **locking VRR 17** can be unlocked manually in the event of a power failure. Refer also to the operating instructions for the record system 17 sliding door operator.
- It can only be used a **mechanical BDE-M** without programming, configuration or fault indication possibilities. It is therefore recommended for the fitter to connect an electronic BDE-E briefly for commissioning and in the event of a fault to take advantage of these special functions. Instead of the BDE-E the fitter can also use the optional **Testbox** 016.860.000.
- It should be noted that for the record system 17 the **radar connections have been adapted to international standards**. This means that **for the radar 251 / 252 no longer the yellow (NPN) but the grey (PNP) wire must be used** for signal transmission. The 0 V is no longer switched, but the 24 V. This also applies to the connection of other peripheral devices. For this reason too, older radar units with only an NPN output cannot be connected to the STG 17. Older radar units with relay output, however, can be connected without difficulty.
- The new **ELS 260** light barrier is used for the record system 17. The ELS 260 has the same construction as the ELS 245, but is self-calibrating (optimum range setting) and has a plastic case. This self-calibration is performed automatically with clear parameter memory or following resetting of the factory settings (8th light pulse to STG 17), and by initiating the "ELS learn" function (2nd light pulse to STG 17).
- The **BAT 17** consists of a ni/cd-accu-pack (Application notes AN 3 also refers). In fact of a power cut the door moves to the preselected end position as required from case to case (open or closed), if the door is not locked. If the preselected end position will be closed, it is possible also in this state to open the door by means of a key-contact **SSK** (even if the door is locked) should the power continue to be interrupted. The status of the door (closed) is exactly the same again after this BAT-SSK cycle as before actuating the BAT-SSK.
- The **SSK key-operated contact connection** is made to both terminals SSK-A and SSK.
- The **bell or fault output contact** can be loaded with maximum 1 A / 30 V.
- With the time switch contact, the **SUR-V** (locked) is active when the contact is open. The connection will be on strip J3, binder 3 + 9 at the STG 17.
- For the input contacts of the mechanical **BDE-M**, 1 = contact closed and 0 = contact open.
- For "simple" applications the record system 17 can also be operated without BDE.
- With the record system 17 the manually actuated **learning cycle (calibration run)** must be started by an opening pulse. 3 to 4 opening cycles are necessary to read-in the door parameters, such as door leaf weight, opening width, friction, etc.

AN 2 Tool kit and auxiliary aids

In the development of the record system 17 it was ensured that only a few tools are required for installation. In addition to a general tool kit, we recommend the following commercially available tools for correct and simple installation:

- Double adjustable wrench 10 / 13
- Socket wrench 2 mm
- Socket wrench 5 mm
- Screwdriver 0
- Screwdriver 1
- Ratchet
- Blade 13 for ratchet
- Extension 150 mm for ratchet
- Socket-head spanner 5 mm long with ball head for ratchet

Testbox (016.860.000)

A testbox is available for test purposes during installation and servicing. This testbox is connected to the STG 16 instead of the peripheral devices (AKI, AKA, SSK, ELS, etc.). It comprises an electronic BDE-E and various switches, keys and LEDs for simulating the various peripheral devices. This enables wiring and product errors in the peripheral devices to be detected quickly and efficiently.

Programming and configurations can also be performed with this Testbox, if a mechanical BDE-M is fitted to the drive. In addition, the Testbox can also be used for easy checking of the configuration settings, e.g. bell control, time switch inputs, NSK, SÖK, etc.

Simple test to control the right function of the drive

There are many situation, in case of commissioning or fault clearance, where it will be much more easy to cut all peripheral devices from the STG to check if the operator does work by himself.

Follow the instructions down below :

- Cut off power and battery.
- Cut off all 4 terminal strip, at the STG 16 / 18, where all the peripheral devices are connected.
- Connect 3 terminal strip just assembled with the following bridges ⇒ simulation of **automatic mode** :

terminal strip J3 (1-12)	bridge	5 – 6 und 3 – 9
terminal strip J4 (13-24)	bridge	13 – 16
terminal strip J2 (30-37)	bridge	31 – 32 und 35 – 36

- Switch on power supply and battery
- Test the drive:
 - The two green LED on the STG have to light.
 - Start a opening-cycle with the “learn” key.

Attention : During the test, there will be no security of light barrier (ELS) or even radar (AKI,AKA).

AN 3 BAT 17: Handling and storing of the ni/cd accu-pack

By delivery, the ni/cd accu-pack will not be charged, first charge will be by commissioning of the STA 17.

Ni/Cd batteries run down during storage. Moreover, an excessive discharge permanently reduces the charge acceptance, so you should not have fully charged accu-pack as spare parts on stock.

Working life of a BAT 17 will be at minimum 3 years.

A test of the BAT 17 can only be done by Testbox (016.860.000).

Order number BAT 17: **015.560.000**

AN 4 Configuration STG 17 with BDE-E

Configurations of the record system 17 can only be made with the electronic BDE-E or the optional Servicebox. If a mechanical BDE-M is connected, a BDE-E or Testbox must be connected briefly for the configuration.

Important: All modifications to the configuration with respect to the standard values (factory settings) must be marked in the relevant box of the configuration review sheet (found in the operator).






The factory settings (Def) for the 5 configuration levels (Conf. level) 1 to 5 are entered in the configuration review sheet. Significance of symbols:

- * = corresponding control LED lights
- = corresponding control LED does not light


All configuration modifications must be marked as follows in the relevant box:

- x = corresponding control LED lights
- = corresponding control LED does not light


Please always leave the configuration review sheet in the drive even when the STG is replaced!

Conf. Level ↓										
	Def.	Änderung	Def.	Änderung	Def.	Änderung	Def.	Änderung	Def.	Änderung
1	*		*		-		-		-	
2	-		-		-		-		-	
3	*		-		-		-		*	
4	-		-		-		-		-	
5	-		-		-		-		-	

1st configuration level

Entry to the configuration levels can only be made with the push-button on the STG. The button must be pressed until the 4th light pulse on the large control LED. The BDE-E is then in the first configuration level. The  LED on the BDE-E flashes in mode 1 as acknowledgement, i.e. the LED lights periodically for approx. 0.15 s with an interval of approx. 2 s (light pattern ● ● ● ●).

The **change** between configuration levels is made by pressing the  or  key.

Exit from the configuration levels is made by pressing the  key briefly or if no operation takes place for 3 minutes (timeout).

Symbol	Function	Factory setting (Default)	Default LED
	door opens, if not locked ***	factory setting	on / on
	Door closes, but doesn't lock ***		off / off
	Bell control ** / fault output	fault output	off
	No locking * (if VRR present, however, it is automatically recognised and setting changed)	factory setting	off / off
	Locking present *		off / on
	Locking present and "One-way" locked *		on / off
	Locking present and always locked *		on / on

* Coded functions for locking device

** When activated, the bell is operated at most every 10 secs. or if the door is closed and the light barrier is not interrupted.
The fault output relay is then omitted in this configuration. If the fault output relay is nevertheless required, an FEM (function extension module) must be used.

*** Coded functions, performed after completion of battery operation

2nd configuration level



The change from 1st to 2nd configuration level is made with the key. The LED flashes in mode 2 as acknowledgement on the BDE-E, i.e. the LED lights periodically twice with an interval of approx. 2 s (light pattern ●● ●● ●● ●●).






Symbol	Function	Factory setting (Default)	Default LED
	Mechanical BDE-M	not activated	off
	Activation SÖK **	not activated	off
	Activation NSK **	not activated	off
	No external safety activated ***	factory setting	off / off
	Activation external safety (ELS) ***	not activated	on / off
	Activation external safety (collision safety) ***	not activated	off / on
	Activation of CO48 safety (special application) ***	not activated	on / on

** SÖK and NSK cannot be activated simultaneously. The function activated last is effective.

*** Coded external safety functions actuated by input SHE-EXT.
With the safety on opening the door stops. The remaining process is the same as with a collision.
The CO48 safety automatically becomes active if „CO48-Ventouse“ is programmed on level 5.

5th configuration level

The change from 4th to 5th configuration level is made with the  key. The  LED flashes in mode 5 as acknowledgement on the BDE-E, i.e. the LED lights periodically five times with an interval of approx. 2 s (light pattern ●●●●● ●●●●● ●●●●● ●●●●●●).

					Function (coded 5 bits)	Factory setting (Default)	Default LED 1=on
0	0	0	0	0	STA17-Basis	activated	0 0 0 0
0	0	0	0	1	CO48-Ventouse + VRR mono	not activated	(V 2.1) *
0	0	0	1	0	CO48-Ventouse	not activated	(V 1.10) *
0	0	1	0	0	(CO48 slide bar)	not supported anymore	(V 2.1) *

* Software-Version

AN 5 Status- and fault signal

Status level (display only)

In the event of irregularity change is made automatically from the operating mode level to the status level. Change is then made approx every 5 seconds between status and operating mode level. No status display is given in the remaining levels. Characteristic of the status level are 2 or more rapidly flashing LED`s of total 6 LED`s. This permits a maximum of 58 different status numbers to be output. A status with „W“ is a warning, which is not followed by switching of the fault output relay. The status is deleted in various ways according to the detailed description (resetting), as you can see in the manual.

LEDs on BDE-E:

1 ⊗ 32	2 ⊗ 16	3 ⊗ 8	4 ⊗ 4	5 ⊗ 2	6 ⊗ 1	LED No status:	Remarks
				x	x	03	AKI - sensor active longer than 60s
			x			04 W	Manual operation
			x		x	05	AKA - sensor active longer than 60s
			x	x		06	Unlocking error
			x	x	x	07	BDE-E defectiv
		x			x	09	Battery fuse blown
		x		x		10	Locking error, door not closed
		x	x			12	Battery defective (voltage too low)
		x	x	x		14	Locking n/o contact defective
	x		x			20	Door leaf interception error
	x	x		x		26	Overload at FEM output
	x	x	x		x	29	TOS is not locked in the „locking“ mode
	x	x	x	x		30	TOS is locked in the „automatic“ mode
	x	x	x	x	x	31	EMERGENCY STOP button operated
x					x	33	Error ELS 1
x				x		34	Error ELS 2
x				x	x	35	End-switch on VRR does not close
x			x			36	End-switch on VRR does not open
x			x		x	37	Wrong motor current
x			x	x		38	Excess temperature motor 1
x			x	x	x	39	Overload on +24 V supply
x		x				40	Excess temperature motor 2
x		x			x	41	Motor 1 - thermal sensor defective
x		x		x		42	Motor 2 - thermal sensor defective
x		x		x	x	43	Incremental generator defective
x		x	x			44 W	Motor current time product high

Status level (continued)


LEDs on BDE-E:

1 ⊗ 32	2 ⊗ 16	3 ⊗ 8	4 ⊗ 4	5 ⊗ 2	6 ⊗ 1	LED No Status:	Remarks
x		x	x		x	45	Motor current time product too high
x		x	x	x		46	Control unit defective
x		x	x	x	x	47	Ext. Safety active longer than 60 s
x	x					48	NSK or SÖK active
x	x				x	49	Alarm CO48 Ventouse
x	x			x		50	Control unit CPU2 is faulty
x	x		x	x		54 W	Calibration run
x	x		x	x	x	55	Power failure
x	x	x		x		58	FEM - connection interrupted
x	x	x		x	x	59	ELS - sensor active longer than 60 s
x	x	x	x			60	Parameter memory defective (EEPROM)
x	x	x	x		x	61	SSK - sensor active longer than 60 s
x	x	x	x	x		62 W	BDE has no priority

- A status number with a "W" is a warning !!

Detail description of status indications

General:

A status can usually be deleted by pressing the  key for 5 s (= reset). This produces a

New start in the control unit.

If, however, the cause of the fault has not been eliminated, the status message will appear again if the fault occurs again.

The causes of faults are listed with decreasing probability in the following list. The fault may be suspect with the least probability in the STG at the end of the faults.

Status 03: AKI sensor longer activ than 60 s
Automatic resetting, provided in order, or by service fitter

Status 04: Manual control

Status 05: AKA sensor longer activ than 60 s
Automatic resetting, provided in order, or by service fitter

- Status 06: Unlocking fault
Possibly lock jammed
Reset by service fitter
- Status 07: BDE-E defectiv
Reset by service fitter
- Status 09: Battery fuse blown
Jumper J13 possibly missing if no battery present
Fuse possibly defective or cable interrupted
Reset by service fitter
- Status 10: Locking fault
Possibly obstruction in door
Automatic resetting provided door is closed and locking possible
- Status 12: Battery defective (voltage too low)
Battery exchanged by service fitter
Automatic resetting
- Status 14: Locking n/o contact defective
VAK contact possibly wrongly adjusted or interrupted
Reset by service fitter
- Status 20: Door leaf interception error
Buffers (end stop) are possibly adjusted the wrong way
Possible wire break at the magnet
Reset by pressing the program key "record" for 5 sec.
- Status 26: Overload at FEM outputs
Reset by service fitter
Remove overload and generate reset with STG key
- Status 29: TOS is not locked in the "locked" mode
Automatic reset if ok or service fitter
- Status 30: TOS is locked in the "automatic" mode
Automatic reset if ok or service fitter
- Status 31: EMERGENCY STOP operated
Reset by resetting EMERGENCY STOP key
- Status 33: Fault ELS 1 during ELS learning cycle
Door possibly too wide or ELS sensor dirty
ELS cable or ELS head possibly defective
Reset by cleaning or service fitter
- Status 34: Fault ELS 2
see status 33
- Status 35: End switch on VRR does not close
Possibly end switch wrong adjusted or defective
Possibly end switch wire break
Reset by service fitter

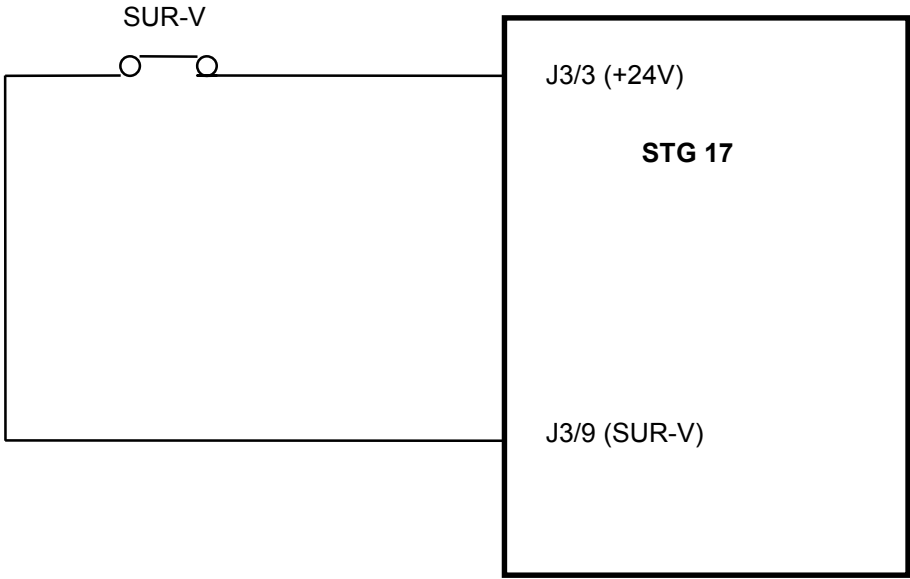
- Status 36: End switch on VRR does not open
Possibly end switch is bond
Reset by service fitter
- Status 37: Defective motor current
STG or ATE defective
Reset by service fitter
- Status 38: Excess temperature motor 1
Manual control effective
Door leaves possibly too heavy or there is too much friction
Reset by motor cooling or by service fitter
- Status 39: Overload on +24 V supply
Possibly too many external units connected
Reset by service fitter
- Status 40: Excess temperature motor 2
See status 38
- Status 41: Motor 1 thermal sensor defective
Motor possibly not connected
Sensor in motor possibly defective or cable broken in sensor lead
Reset by service fitter
- Status 42: Motor 2 thermal sensor defective
See status 41
- Status 43: Incremental generator defective
Generator cable possibly not connected or cable broken in lead
- Status 44: Motor current time product high
Possibly too much traffic or door leaves too heavy
Minimum hold-open time extended to approx 4 s
Automatic resetting by cooling
- Status 45: Motor current time product too high
Possibly too much traffic with door leaves too heavy
Hold-open time extended to approx 20 s
Automatic resetting by cooling
- Status 46: Control unit defective
Includes the following individual faults:
EPROM, RAM, Watchdog, I_{max}, I_{maxT}, difference on SHE-EXT
Reset by service fitter
- Status 47: External safety sensor active longer than 60 s
Automatic resetting, if in order, or by service fitter
- Status 48: Emergency fail close contact or emergency opening contact active
(interrupted)
Automatic resetting if contact recloses

- Status 49: Alarm CO48 Ventouse
Interruption sandow switch or interruption at the switch
Close Ventouse, tighten sandow or adjust switch
Reset is carried out automatically
- Status 50: Control unit CPU2 is faulty
Reset by service fitter
- Status 54: Calibration run
Wait until door is closed
Automatic resetting after completion of 3 openings
- Status 55: Power failure
Battery operation if battery present
Automatic resetting when power restored
- Status 58: FEM connection interrupted
The connection did exist but is now interrupted
Check the cable, FEM may also be faulty
- Status 59: ELS sensor active longer than 60 s
Automatic resetting, if in order, or by service fitter
- Status 60: Parameter memory defective (EPROM)
Change control unit
Reset by service fitter
- Status 61: SSK sensor active longer than 60 s
Automatic resetting, if in order, or by service fitter
- Status 62: BDE has no priority, since higher-level signal present (e.g. time switch)
Automatic resetting by releasing BDE key

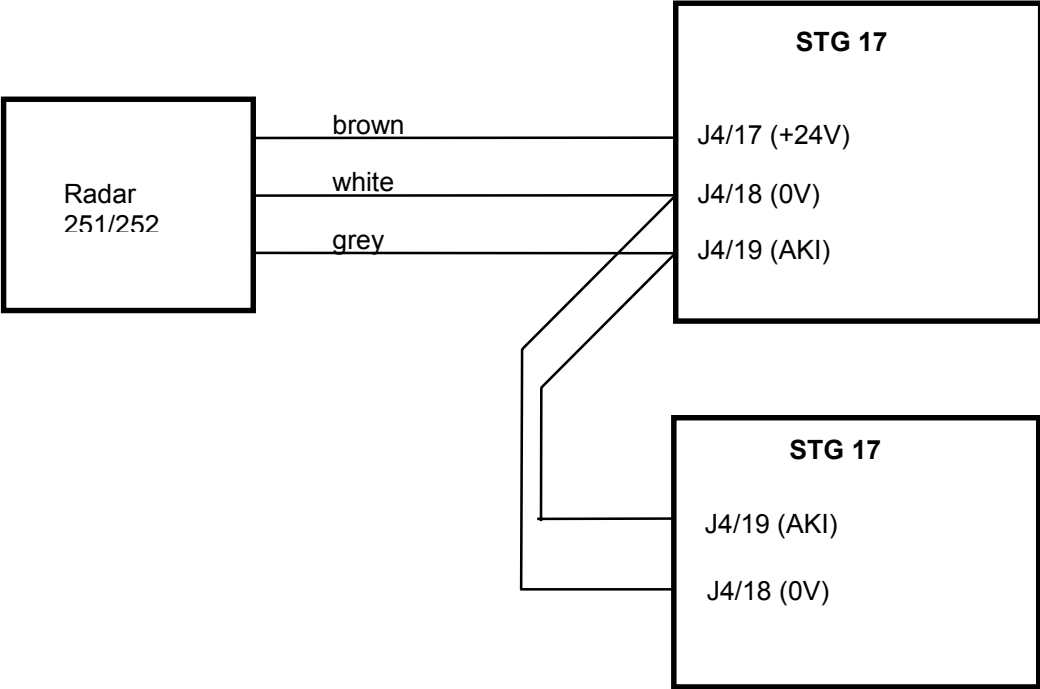
AN 6 Connection of a time switch for SUR-V ("locked") with BDE-M

- Attention:**
- Connection of SUR-A ("one-way") with BDE-M is not possible.
 - Input SUR-V has no priority against BDE-M.

Connection of 1 time switch at binder 3 + 9 (terminal strip J3) of the STG 17.



AN 7 Connection of a common sensor (radar) to 2 STG 17



AN 8 Safety inputs SHE-EXT, SÖK, NSK

If input SHE-EXT, SÖK or NSK are required, they must first be activated by BDE-E. (conf.-level 2 in **AN 4**).

Also when using a BDE-M these inputs must be activated by temporarily connecting a BDE-E.

These contact inputs must be **closed in the rest position, i.e. normally open contact.**