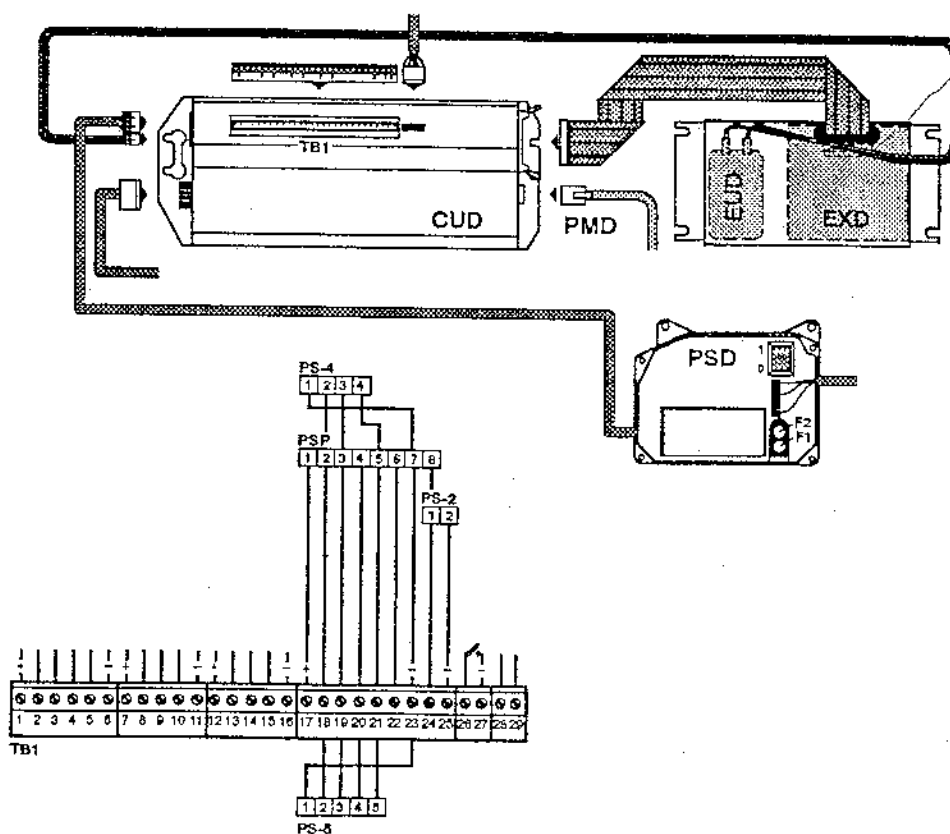


Electrical Connection, Adjustment and Troubleshooting

Sliding Door Operators Power-Glide™ AMD, Ez-Fit™ EMD, Tele-Glide™ TMD



Installing/Removing the cover

Installing

1. Fix the centre bracket in the pre-drilled holes in the drive module in the centre of the door opening (see fig. 27a and 28a). Note! Only valid for bi-parting door operators.
2. The cover is fixed by means of pre-mounted spring-loaded cover locks. The cover locks are slid over a special flange in the lower part of the cover and positioned as indicated in figs. 28a/28b.
3. Fit the upper part of the cover into the covering plate and push it in against the centre and cover brackets.
4. The cover locks will engage around the lower part of the centre and cover brackets.

Removing

1. Set the programme selector (if fitted) to the "open" position and close the doors manually.
2. Reach into the bottom of the cover and push on the cover lock (see fig. 27b). At the same time pull the lower part of the cover outwards until the cover is released from the cover lock. Repeat this procedure for all cover locks.
3. Pull the lower part of the cover outwards about 10°. The cover can now be lifted off at the hinge joint or swung further outwards/upwards. A suitable support can then be placed to keep the cover open (see fig. 27c).

Fig. 27a

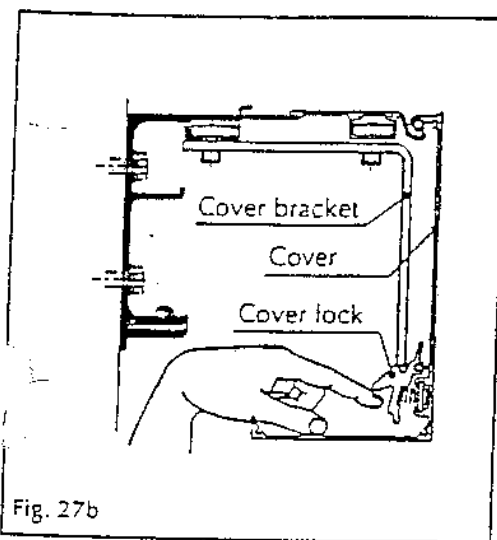


Fig. 27b

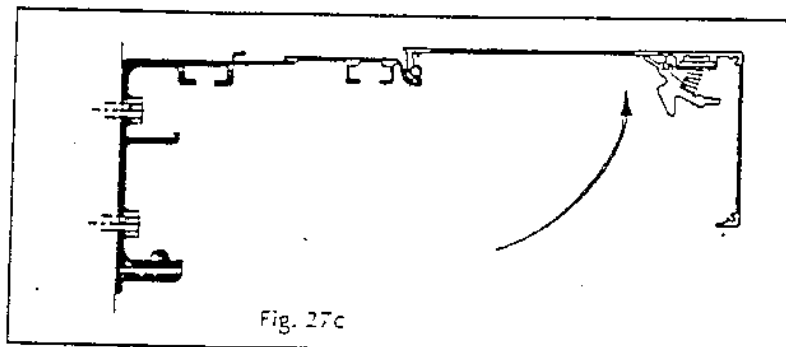


Fig. 27c

EMD-2..., bi-parting operator

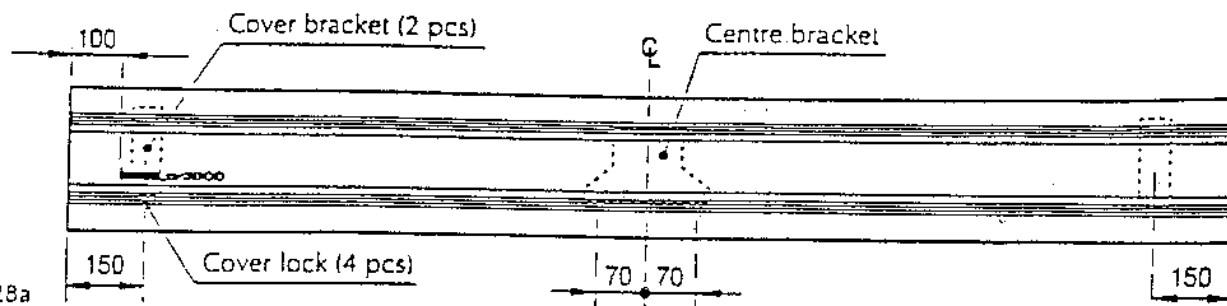


Fig. 28a

EMD-1..., single-sliding operator

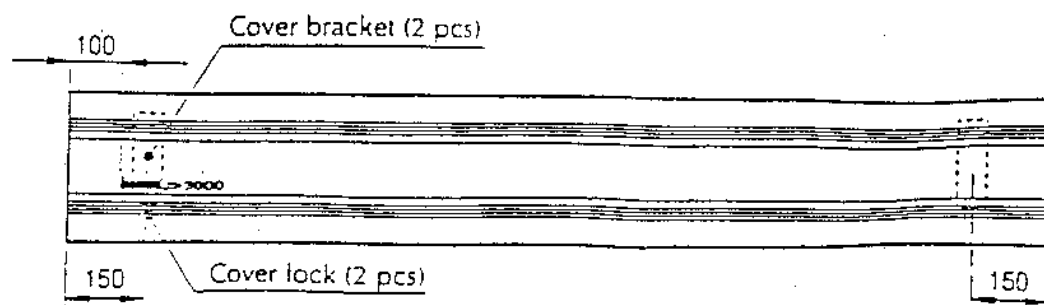


Fig. 28b

The computerized control unit is equipped with:

Contacts for connection of:

- Programming module PMD; to be used for programming of the operating values into the computer (see page 27-34)
- Motor unit
- Emergency unit; to be used when there are requirements for the operator to open or close the door in case of a power failure (see page 25)
- Power supply unit
- Revolution counter
- Extension unit EXD-3 (see separate connection drawing)

Terminal block for connection of:

- Auxiliary units (TB1), as activation units, electromechanical locking device etc.

Note! To facilitate the connection, the control unit CUD-3 can be loosened and temporarily moved to its lower position.

Programme selectors (see also programming module PMD page 27-34)

Programme selectors, PS-4, PS-2 and PS-5

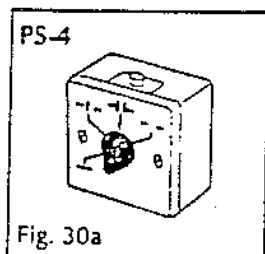


Fig. 30a



-- "Off"

The illustrations show programme selectors with knob, intended for surface mounting, but the selectors are also available with key and for flush mounting.

This standard programme selector is used to obtain the following necessary functions of the operator:

The inner and outer activation units are disconnected. The door is locked if an electromechanical locking device has been fitted (see page 24). However, the door can be opened with a key impulse.

- ↑ - "Exit"

Passage through doorway from inside only. The door is locked if an electromechanical locking device has been fitted (see page 24). The door can only be opened with the inner activation unit and with a key impulse.

- ↑↑ - "Auto"

The door can be opened with the inner and outer activation units.

- - "Open"

The door is permanently open.

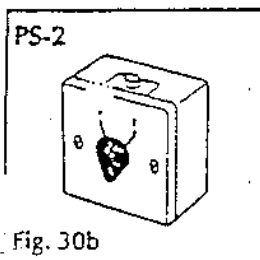


Fig. 30b



This programme selector has two positions, "1" and "0". It is necessary to install this selector if permanent partial opening is required.

With PS-2 in position "1" the partial opening width (03-20 dm, function 15) and hold open time (0-60 s, function 16) set by the programming module PMD are always obtained.

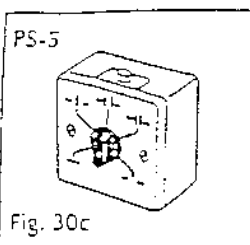


Fig. 30c



"Auto width"

This programme selector has the same functions as PS-4, plus an additional position, marked:

In this setting the operator is programmed to select full or partial opening, depending on the volume of traffic.

- If the door is closed, from full opening, for more than the time set by the programming module PMD (0-60 s, function 19) the next opening will be partial.
- If the door remains partly open, or is prevented from closing, more than the time set by the PMD (0-60 s, function 18) it will automatically select full opening.
- The width of the partial opening (03-20 dm, function 15) and the "Auto width" hold open time (0-60 s, function 17) are set by the PMD.
- Permanent partial opening cannot be selected with this selector.

Note! The programme selectors PS-2 and PS-5 can be used together. If PS-2 is set to position "1" and PS-5 to any position but "Auto width", permanent partial opening is obtained. If PS-5 is set to "Auto width" and PS-2 to "0" or "1", the "Auto width" function is obtained.

Programme selector, PSP

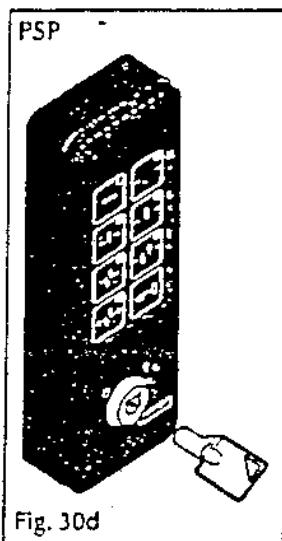


Fig. 30d



"Auto partial"



"Exit partial"



"Key imp."



"Reset imp."

The illustration shows a push-button programme selector for surface mounting, but the selector is also available for flush mounting.

This selector has the same functions as PS-5, plus four additional functions. It is also provided with LED's indicating the selected function and it is lockable.

- The door can be opened partially with the inner and outer activation units.
- Passage through a partially opened doorway from inside only. The door is locked if an electromechanical locking device has been fitted (see page 24). The door can only be opened with the inner activation unit and with a key impulse.
- Key impulse button which opens the door partially in the positions "Off" and "Exit".
- Reset impulse button which resets the control unit CUD-3, and the programme selector PSP.

Electromechanical locking devices

An electromechanical locking device can be installed if the door is to be locked in the closed position (see separate installation drawings.) The locking device can be locked without power (ELD) or with power (ELDP). See programming module PMD function 22 value A or b (page 27-34).

- The electromechanical locking device is controlled by the programme selector and the door is locked with the programme selector in "Exit" or "Off". In the other settings the door is unlocked.
- In the setting "Exit" the outer activation unit is disconnected. The inner activation unit, however, can still be used and opens the lock and door when impulsed.
- In the setting "Off" both the inner and outer activation units are disconnected, and the door cannot be opened with these.
- The door can always be opened with a key impulse, overriding the programme selector in "Exit" or "Off".

The locking device can, if locked without power, be manually released, by means of a separate accessory, MODD (see separate installation drawing).

As a complement to the electromechanical locking device, a manual cylinder lock, LCD, can be installed (see separate installation drawing).

Bi-parting doors

ELD-2	locked without power
ELDP-2	locked with power

Single-sliding doors

ELD-L	locked without power – left opening
ELD-R	locked without power – right opening
ELDP-L	locked with power – left opening
ELDP-R	locked with power – right opening

Pharmacy opening

Pharmacy opening (see separate connection drawing) is used for bi-parting operators when a small partial opening of the door is required, e.g. when exchanging prescriptions and drugs. To prevent manual opening of the door in this position a separate locking device, ELDP-PH (locked with power), must be installed as well as programme selectors PS-4/5, or PSP (see separate installation drawings). As activation unit a programme selector PS-2 or a standard push-button can be used.

Note! The electromechanical locking device ELDP-PH has a fixed opening width of 160 mm.

Adjustment

The opening can be set between 5"-20 cm. The pharmacy hold open time can be set between 0-60 s.
(See programming module PMD, function 20 and 21, page 27-34.)

The programme selector PS-4/5 or PSP must be set to "Off".

Programme selector PS-2 in position 1: Opens the door.

Programme selector PS-2 in position 0: Closes the door after the pharmacy hold open time set.

*) **Note!** To obtain pharmacy opening, the setting of the opening

Automatic emergency opening or closing

Electronic emergency unit, EUD-3

The operator can be fitted with an electronic emergency unit EUD-3, which in case of a power failure automatically opens or closes the door, by means of a rechargeable battery unit. The door remains in this position until the power is restored. The operator will then resume the function set by the programme selector. Emergency opening or emergency closing is selected with the programming module PMD function 11, value A or b. If EUD-3 is installed, function 12, value A must be selected (see page 27-34).

If required not to have opening/closing during power failure with the programme selector in "Off", select function 14, value b with the programming module PMD (see page 27-34).

Mechanical emergency unit, PFR-3

The mechanical emergency unit PFR-3, is a self-monitoring unit, which by means of an elastic cord opens the door in case of a power failure. If PFR-3 is installed, function 12, value b on the programming module PMD, must be selected (see page 27-34).

Monitoring of the emergency units EUD-3 and PFR-3

The function of the emergency units is monitored by the control unit if the programming module PMD is set to function 13, value b (see page 27-34). This monitoring means that the door opens or closes (EUD-3) or opens (PFR-3) and remains in this position if a proper emergency opening or closing no longer can be achieved. The monitoring is not carried out with the programme selector in positions "Off" and "Open".

Manual emergency opening or closing with emergency unit EUD-3

When required that the emergency opening or closing should not be carried out automatically in case of a power failure, a non-locking emergency push-button for manual control of the door can be connected. When the push-button is being pressed the door will open or close by means of the emergency unit. The door remains in this position until the power is restored. In order to obtain this function, the jumper marked B1 on the CUD-3 is to be cut open. The push-button is to be connected in accordance with fig. 31a on page 26.

Automatic emergency opening or closing, with emergency unit EUD-3, when PS-/PSP is not in the setting "Off" and manual when PS-/PSP is in the setting "Off"

When required that the emergency opening or closing, in case of a power failure, should be carried out automatically when the PS-/PSP is not in the setting "Off" – and with an emergency push-button, when the PS-/PSP is in the setting "Off" – a non-locking emergency push-button for manual control of the door can be connected. When the push-button is being pressed the door will open or close by means of the emergency unit. The door remains in this position until the power is restored. The push-button is to be connected in accordance with fig. 31b or 31c on page 26 and the programming module PMD is to be set to function 14 value b (see page 27-34).

Connection of emergency push-button – for operation without mains power

For emergency opening with or without mains power see separate connection drawing for extension unit EXD-3.

Manual emergency opening or closing

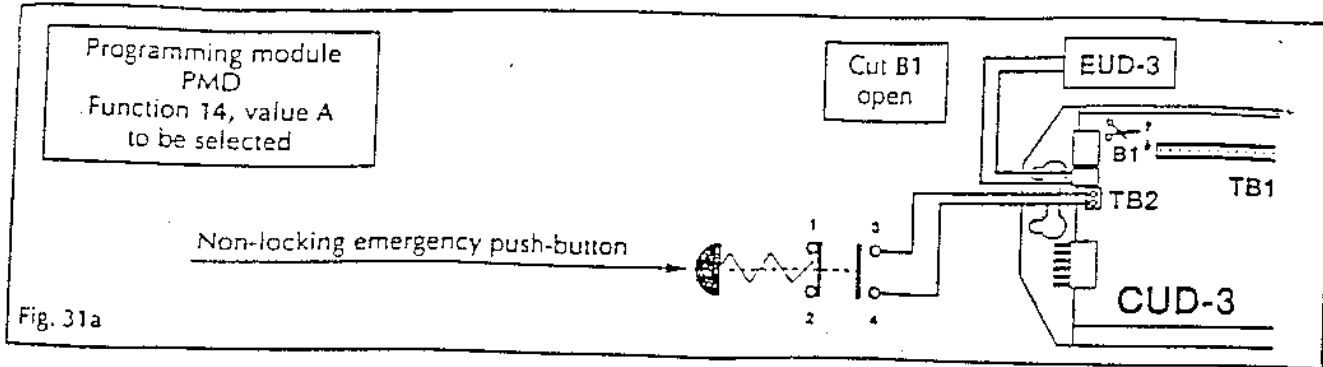


Fig. 31a

Automatic emergency opening or closing when PS-4/PS-5 is not in "Off" position and manual when PS-4/PS-5 is in "Off" position

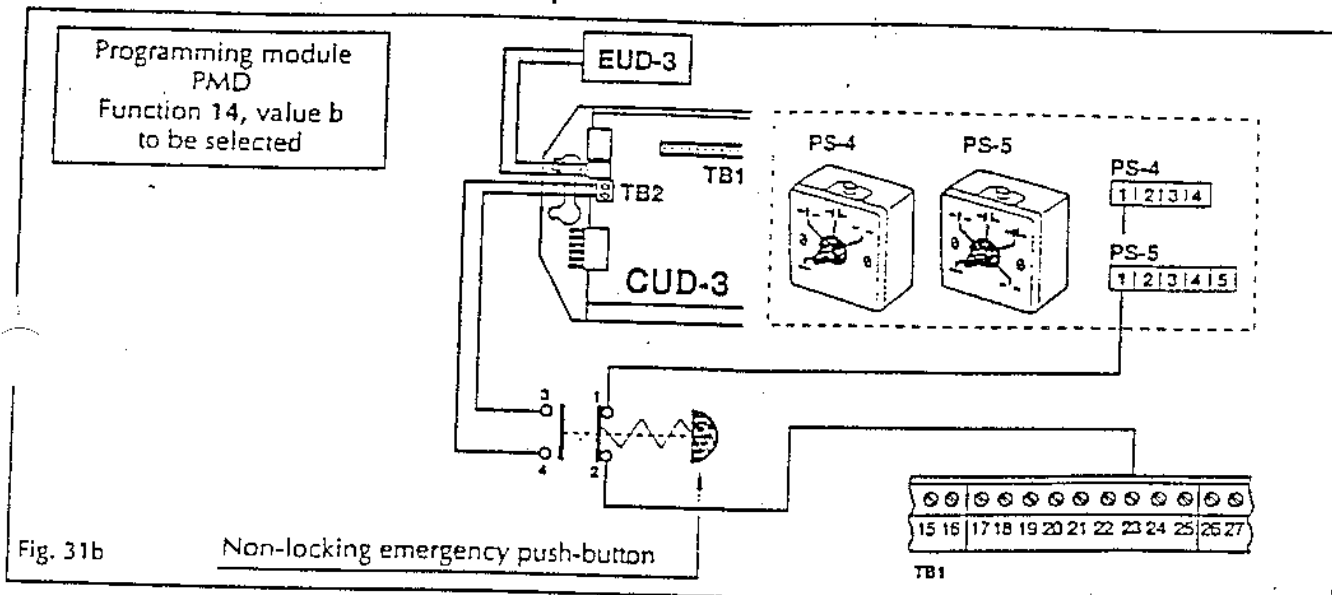


Fig. 31b

Automatic emergency opening or closing when PSP is not in the setting "Off" and manual when PSP is in the setting "Off"

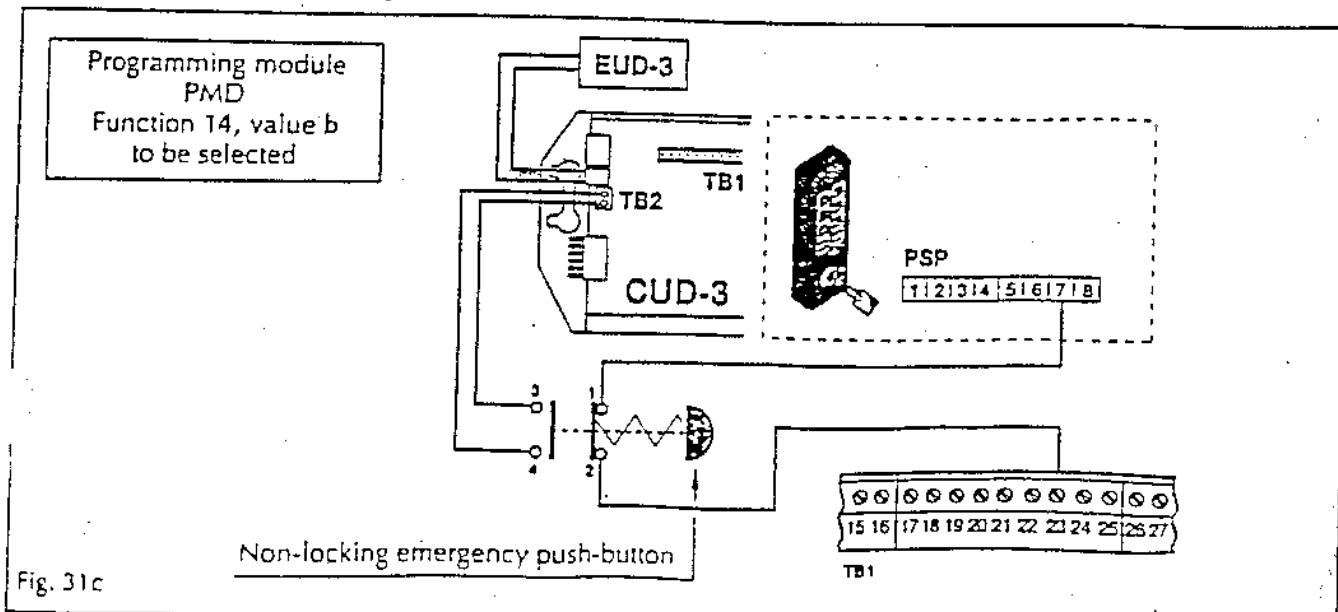


Fig. 31c

The PMD is used for programming the operating values into the control unit CUD-3. The programming is made by a set of buttons. The PMD has a limited service life. A count down is made at every connection and the remaining "value" is shown on the display. When the figures "0000" are shown the PMD is unusable and must be replaced.

PMD/push-button set

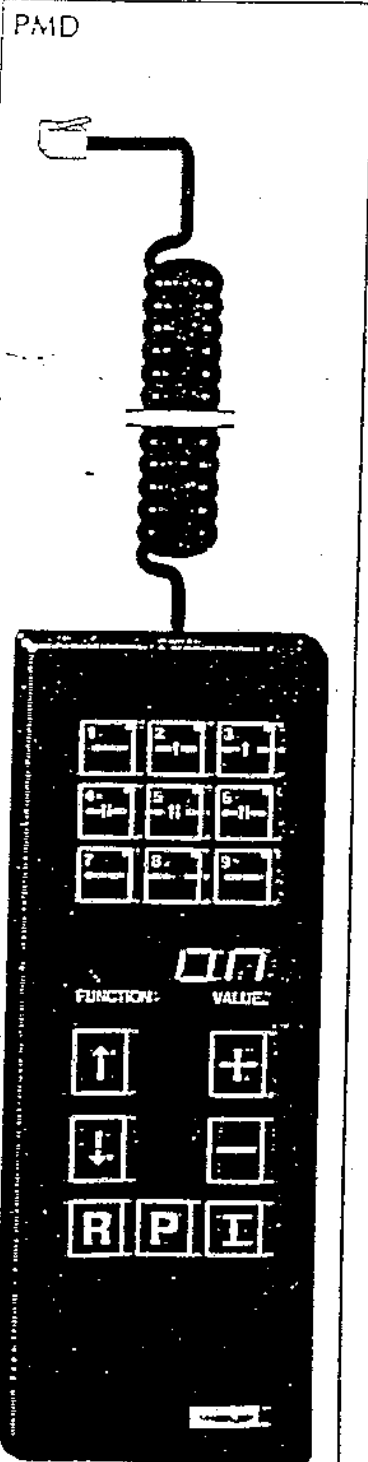


Fig. 12a

Function buttons



These buttons are used for setting or checking the functions (01-99) for speed, hold open time, monitoring etc. A push on the upper button will increase, and on the lower one decrease, the setting with one digit. If the button is held depressed for more than 2 s the function number will be incremented/decremented every 0.1 s. When the final function (99) has been reached the digits will roll over to the function 01 and start all over again. (See also page 29.)

**) Note! When selecting any of these functions the latest value, programmed into the operator, will be displayed, except for function 99, where value 01 will always be displayed.*

Value buttons



These buttons are used to set the wanted value for the selected function. A push on the plus-button will increase, and on the minus-button decrease, the value with one digit. If the button is held depressed for more than 2 s the value will be incremented/decremented every 0.1 s. When the end value has been reached the digits will roll over and start all over again. (See also page 29.)

Program button



This button is used to program the control unit with the function and value selected on the PMD. To indicate that data has been transferred into the control unit, the display will be blank (fractions of a second) and will then resume the selected digits.

Impulse button



This button is used to give an opening impulse to the operator. If the button is held depressed the impulse is given every 0.2 s. If setting 1 "Off" is selected, a key impulse is given. See PMD programme selector (push-button set) page 28.

Reset button



This button is used to reset the control unit CUD-3 and the programming module PMD. If the button is held depressed for approx. 2 s, the door will make a search cycle (open/close) to find the width of the opening.

Function display

When a FUNCTION button is depressed, the latest function used will be presented on the function display. If no function has been selected previously, the function "01" will be shown. If the FUNCTION and VALUE buttons are not activated for 5 s the display will be blank.

Value display

The VALUE display shows the value for the selected function. If the FUNCTION and VALUE buttons are not activated for 5 s the VALUE display will show the present status or error code for the operator (see page 33).

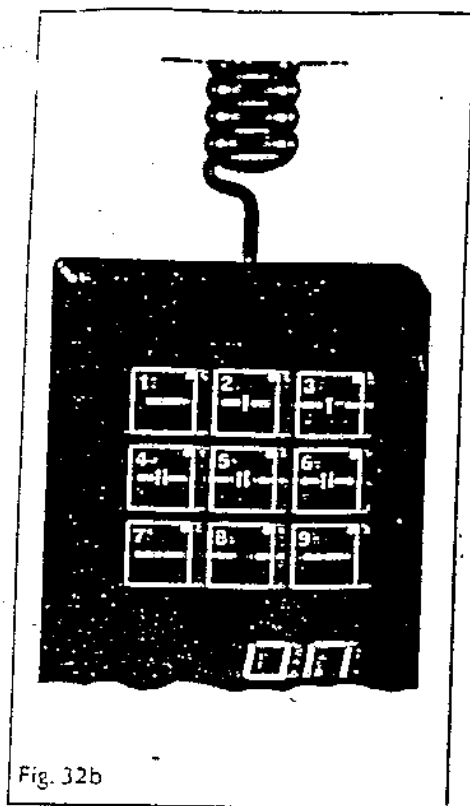


Fig. 32b

PMD programme selector (push-button set)

These buttons, marked 1-9, are used to obtain the necessary functions of the operator. With the PMD connected to the CUD-3, these settings are overriding the settings of the programme selector, PS-/PSP (if fitted). The functions of the programme selector, PS-/PSP, are resumed approximately 30 s after the removal of the PMD.

Settings

1. "Off"	The door is closed.
2. "Exit partial"	Exit only, the door opens partially.
3. "Exit"	Exit only, the door opens fully.
4. "Auto partial"	The door opens partially with inner and outer activation units.
5. "Auto"	The door opens fully with inner and outer activation units.
6. "Auto width"	The door selects full or partial opening depending on the volume of traffic.
7. "Open partial"	The door is permanently partially open.
8. "Open"	The door is permanently fully open.
9. "Pharmacy"	The door opens to the pharmacy opening set (5-20 cm) and closes after the impulse is released and the pharmacy hold open time has elapsed.

Note!

To get a pharmacy opening, the setting 1, "Off" and a pharmacy opening width (5-20 cm) must be selected.

4. Check the status code on the PMD display

The PMD display continuously shows the following status codes during the operation. These status codes are not error codes but show the present active impulse. If any of the status codes is constantly displayed the corresponding unit has to be checked and if necessary remedied or replaced. Always press the reset button R after remedy/replacement.

Status code	Status	Remedies
on	Operation OK	
10	Search cycle running (open/close)	Let the door finish its cycle
11	Inner impulse is active	Check the impulse input
12	Outer impulse is active	Check the impulse input
13	Door opened by Open/Close impulse on EXD-3	Check the open/close input on the EXD-3
14	Key impulse is active	Check the impulse input
15	Pharmacy impulse is active	Check the impulse input
16	Interlocking impulse on EXD-3 is active	Check the connections
17	Presence impulse -1 is active	1. Check that correct photocell type is selected on the PMD, function 09. 2. Check the photocell output.
18	Presence impulse -2 is active	—
19	Not used	—
20	Not used	—
21	Stop impulse -1 is active	—
22	Stop impulse -2 is active	—
23	Open/close impulse on EXD-3 required	Give impulse on the open/close push-button
24	Standby supply/EUD-3 active	Check the EUD-3
25	Emergency opening impulse is active	Check the emergency impulse button
26	Overtemperature	—
27	Door blocked	Check for obstacles

After remedy or replacement the operator has to be checked as follows:

1. Study the door movement and adjust the functions to the values required for a smooth door operation.
2. Check that correct functions and values have been selected for the accessories to be installed and that the installation complies with valid regulations and requirements from the authorities.

Function	Description	Value (approx.)	*)
01	High speed opening	20-70 cm/s	30
02	Low speed opening	05-15 cm/s	06
03	Low speed distance opening	00-30 cm	10
04	High speed closing	15-70 cm/s	20
05	Low speed closing	05-15 cm/s	06
06	Low speed distance closing	00-30 cm	05
07	Hold open time	00-60 s	06
08	Hold open time with key impulse	00-60 s	06
09	Presence sensor type, make/break impulse "	A/b (make/break)	A
10	Monitoring of the inner activation unit "	A/b (no/yes)	A
11	Emergency opening / Emergency closing (EUD-3) "	A/b (opening/closing)	A
12	Electronic / Mechanical emergency unit "	A/b (elect/mech.)	A
13	Monitoring of the emergency unit "	A/b (no/yes)	A
14	Emergency function with the programme selector, PS-/PSP, in "Off" "	A/b (yes/no)	A
15	Partial opening width "	03-20 dm	05
16	Hold open time for partial opening "	00-60 s	02
17	"Auto width" hold open time "	00-60 s	02
18	Impulse time from "Auto width" to full opening "	00-60 s	15
19	Resume time for "Auto width" after closing, from full opening "	00-60 s	05
20	Pharmacy opening width "	00-20 cm	00
21	Pharmacy hold open time "	00-60 s	06
22	Electromechanical lock, locked without/with power "	A/b (without/with)	A
23	Hold force on closed door "	00-10 N	00
24	Emergency opening impulse connected	A/b (no/yes)	A
25	Interlocking / Synchronizing, between two doors "	A/b (interl./synchr.)	A
26	C-switch distance (normally not used)	00-80 cm	00
27	Motor direction "	A/b	b
28	Number of operator cycles performed x 10 000	00-99	00
29	Number of operator cycles performed x 100	00-99	00
30	Active run program ? "	01-06	03
98	Run program "	01-06	-
	Copying and transferring of values between operators "	96-99	-
99	System tests "	01-07	-

*) Values, factory pre-programmed into the CUD-3 on all operators delivered (see page 32).

- 1) See monitoring of the activation units, page 30.
- 2) See emergency units, page 25.
- 3) See programme selectors, page 22-23.
- 4) See pharmacy opening, ELDP-PH, page 24.
- 5) After changing always press the reset button R (see electromechanical locking device, ELD/ELDP, page 24).
- 6) With this function a hold force can be selected that holds the door with a certain force in closed position.
- 7) This function is used if there are requirements for interlocking between two operators i.e. the first operator must close before the other one can open, or for synchronizing two single-sliding operators installed for operation against each other, where all functions shall be carried out simultaneously for both operators (see separate connection drawing for FXD-3).

8) After changing the direction of rotation always press the reset button R.

- 9) Information about active run program. (The value cannot be changed with function 30 selected.)
- 10) Pre-programmed basic values for 6 different run programs can be selected (see page 31).
- 11) See PMD/Copying of programmed values, page 31.
- 12) With this function, 7 different functional tests can be performed (see page 34).

Function No. 09 Presence sensor type (make or break impulse)

In certain cases it is required that the door operator should be equipped with PRESENCE and STOP functions.

PRESENCE function means that presence sensors are installed in the door opening. If the sensor is activated when the door is fully open or during the closing cycle, the door will stay open or reverse to the open position as long as the sensor is activated.

STOP function is used e.g. when the door is fitted with a break-out panic unit. The STOP function is normally obtained by means of a photocell. If the beam of the photocell is broken the door will immediately stop.

The PRESENCE and STOP activation units are connected to the terminals 8, 9 and 13, 14 on the terminal block TB1 (see page 21). The impulse signal given is either closing (make) or opening (break), depending on the design of the activation unit. The control unit is designed to receive both types.

- Value A = The terminals 8, 9 and 13, 14 on TB1 only receive closing (make) impulse signals
 b = The terminals 8, 9 and 13, 14 on TB1 only receive opening (break) impulse signals

If value b is selected all connected PRESENCE and STOP functions are monitored in all the programme selector settings. This means that the control unit checks the function of the PRESENCE and STOP activation units before each closing. If any of the units is not working, the door remains open.

Note! If the value (A/b) selected doesn't correspond to the installed photocell type, the status code "22" will be displayed (see page 36).

If value b is selected and one or more of the PRESENCE and STOP activation unit terminals are not used, they have to be linked to terminal No. 10 or 15 on the terminal block TB1 as follows:

- If the PRESENCE (1) function is not used, terminal No. 8 is to be linked to terminal No. 10.
- If the PRESENCE (2) function is not used, terminal No. 9 is to be linked to terminal No. 10.
- If the STOP (1) function is not used, terminal No. 13 is to be linked to terminal No. 15.
- If the STOP (2) function is not used, terminal No. 14 is to be linked to terminal No. 15.

If none of the terminals on TB1 is used, linking is not necessary. Then value A is to be selected.

Function No. 10 Monitoring of the inner activation unit

Note! The inner activation unit must be adapted for receiving monitoring test signals from the control unit if value b is selected.

This function is used if there are requirements for monitoring of the function of the inner activation unit. The function is monitored by the control unit in all programme selector settings except "Off". If the activation unit is out of function, the door will open and stay open. The door closes again if the programme selector is set to "Off". The monitoring is obtained if the activation unit is connected in accordance with "Monitored inner impulse" on page 21.

- Value A = No monitoring of the inner activation unit function
 b = Monitoring of the inner activation unit function

Note! If value b is selected, error code "52" will be displayed if the radar cannot be monitored or is defective (see page 35).

Programmed run programs (Function 98) See also start-up page 32.

To facilitate the adjustment, pre-programmed basic values for six different run programs (operating performance) can be selected with the function 98 and any of the values 01 – 06.

When selecting the values in the order from "01 to 06" the performance of the operator is gradually increased and can be adapted to the valid operating conditions (see "Adjustment and checking" page 32).

Programming the run programs into the CUD-3

1. Plug the PMD into the CUD-3 on the operator.
2. Select function 98 and any of the values 01 – 06.
3. Press the program button P within 5 seconds. The selected run program will now be transferred from the PMD to the CUD-3.

Note! The values transferred are only values affecting the operator performance and not the "country specific" user values (see below).

Copying programmed values (Function 98) See also start-up page 32.

This function is used to facilitate the adjustment by copying the values from one smoothly running operator to another one with similar operating conditions. The values can be copied in two levels.

- Copying of user values only (functions 01–27, see page 29)
- Copying of all values

Transferring of the user values only (country specific values)

PMD

1. Plug the PMD into the CUD-3 on the operator having the values to be copied.
2. Select function 98 and value 99.
3. Press the program button P within 5 seconds. The user values only will now be transferred from the CUD-3 to the PMD.

CUD-3

1. Plug the PMD into the CUD-3 on the operator receiving the copied values.
2. Select function 98 and value 98.
3. Press the program button P within 5 seconds. The user values will now be transferred from the PMD to the CUD-3 on the new operator.

Copying and transferring of all values

PMD

1. Plug the PMD into the CUD-3 on the operator having the values to be copied.
2. Select function 98 and value 97.
3. Press the program button P within 5 seconds. All programmed values will now be transferred from the CUD-3 to the PMD.

CUD-3

1. Plug the PMD into the CUD-3 on the operator receiving the copied values.
2. Select function 98 and value 96.
3. Press the program button P within 5 seconds. All values will now be transferred from the PMD to the CUD-3 on the new operator.

Always start any trouble-shooting by checking the mechanical and electrical parts of the operator in the following order (see also the connection drawing on page 21).

1. Mechanical checking and remedies

Set the mains switch on the power supply unit to position "0". Pull the door leaf manually and check that the door can be easily moved over the complete sliding track/floor guide. If the door leaf stops or is hard to move, the reason may be sand, stones, rubbish etc. in the floor guide. The door leaf may also be jamming on the floor or on the weather strips. Clean the floor guide, adjust the door leaf height/depth or take other necessary measures until the door leaf is running smoothly when manually operated.

2. Connect the PMD to the CUD-3

Set the mains switch on the power supply unit to position "1".

Symptom

No lights on the PMD-display.

Remedies

Check the mains switch and fuses (F1, F2). If the fuse F1 (SAT) has blown, see the limitations stated in the table on page 32.

3. Check if any error code is flashing on the PMD display

If the operator does not function properly depending on any of the reasons below, an error code will be flashing on the PMD display. If more than one reason for the malfunction is found, the highest code will be displayed. After remedy the second highest code will be displayed etc. Always set the mains switch to position "0" before replacement.

Reason	Error code	Remedies
Door opened without impulse	50 flashing	Check why the door moved
Presence/Stop detection unit defective	51 flashing	Replace the presence detection unit
Inner activation unit defective	52 flashing	Replace the activation unit
Electronic emergency unit EUD-3 defective	53 flashing	Check EUD-3 fuse/replace EUD-3
Mechanical emergency unit PFR-3 defective	54 flashing	Check the emergency unit PFR-3
Motor direction error	55 flashing	Replace the control unit or motor
Control unit defective	56 flashing	Replace the control unit
Revolution counter defective/Overspeed detection	57 flashing	Replace the motor
Emergency opening impulse button defective	58 flashing	Check the emergency impulse button
Programming module PMD defective	69 flashing	Replace the PMD
Communication error PMD → CUD-3	70 flashing	Check the connections

Note!

After remedy a direct selection system test (function 99) can be carried out on some of the units stated in the table. Within this system test a separate test of the external programme selector can also be selected (see page 37).