# SERVO-TOP

## QE5542

CE

# Type

# YA322SE

## Instruction Manual

## Part 3

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# Contents Part 3


| Chapt. | Contents | Page |
|---|---|---|
| **11**. | Survey and List of Parameters | 11.1 - 11.6 |
| 11.1 | Explanation of Parameter Survey | |
| 11.2 | Explanation of Parameter List | |
| 11.3 | Parameter Survey | |
| 11.4 | List of Parameters | |
| **12**. | Electrical Connections Diagram | 12.1 - 12.4 |
| **13**. | Maintenance and Repair | 13.1 |


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# 11. Survey and List of Parameters

## 11.1 Explanation of Parameter Survey

The parameter survey is designed as an aid for finding parameters quickly. It is a summary of references for the parameter list. Listed behind each reference are all parameters which exert an influence on the function described by the reference.

The parameter survey is divided into five columns:
Column 1 shows the references (functions) to which parameters are assigned.
Column 2 shows the abbreviations of the respective functions.
Column 3 shows all parameters (setting numbers) belonging to the respective reference.
Column 4 shows, for each function (reference) which controls inputs or outputs, the applicable indications such as Ex or Ax which can also be found on the connections diagram.
Column 5 shows, for each function (control inputs (Ex) or control outputs (Ax)), the respective plugs with the number of contacts (see connections diagram).

Example for searching a parameter:
Keyword (function): inverse rotation
The parameter survey shows in column 3 the parameter numbers 618, 623, 801.

Suppose that the inverse rotation function is to be enabled. The parameter list shows this function under parameter number 618.

## 11.2 Explanation of Parameter List

The parameter list is divided into 5 columns. These comprise, in
column 1: the parameter number,
column 2: is the explanation (meaning) of the parameters and the coding system of row 1 of the keys of the mini operator's panel, used when the parameter concerned can be programmed with the mini operator's panel,
column 3: the programming level (A, B, C) on which the parameter in question can be accessed,
column 4: the range of values within which the parameter in question can be set,
column 5: the value of the parameter in question is set on delivery ex factory.

Parameters having "either/or" validity (software switches) can merely be set to value I or II. In the case of such parameters, column 4 is empty.
Parameter numbers in acute brackets; e.g. <105>, mean the value (content) set for the parameter in question.

Example:
**107** Speed for front backtack when <106> = I
I limited by <105>
II limited by <607>

Explanation:
Parameter 107 is valid only the the value (content) of parameter <106> = I.
If parameter 107 is set to I (<107> = I), then the speed for the front backtack is limited by parameter 105, e.g. <105> = 1500. If parameter 107 is set to II (<107> = II), then the speed for the front backtack is limited by the value of parameter 607, e.g. <607> = 4000.

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## 11.3 Parameter survey YA 322SE (2Z_Y04_1.HEX)

| Function | Abbrev'n | Parameter | Input Output | Connection Socket/Contacts |
|---|---|---|---|---|
| Accelerate | DRZAN | 722 | | |
| Affichage | ANZ | 605 | | |
| Auxiliary drive | ZUSAN | 805/808/809 892/893/899 | | |
| Band supply | BZUF | 490 | | |
| Brake | DRZAB | 723/851 | | |
| Control | REG | 884/885/886 887/889/890 891/892/893 894 | | |
| Control of edge | KST | 296 | | |
| Defect search | HWT | 797 | | |
| Delay | VERZ | 174/190/191 192/194/197 527/730/899 924 | | |
| Direction of rotation | DRR | 800/805/808 809 | | |
| Display | ANZ | 605 | | |
| Front backtack | AR | 105 | | |
| Gather setting | RAFF | 950/960 | | |
| Guiding aid | FUEGEH | 923/924 | | |
| Hardware test | HWT | 797 | | |
| Holder | TUPF | 527 | | |
| Needle position | NAPO | 700/701/702 703 | | |
| Number of stitches | STZA | 128/131/132 133/141/174 294 | | |
| Photocell | LS | 161 | | |
| Presser foot | PF | 729/730 | | |
| Program | PR | 128/131/132 133/851 | | |
| Programming level C | EBC | 798 | | |
| Residual brake | STBR | 718 | | |

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| | | |
|---|---|---|
| Soft start | SANL | 116 |
| Speed | DRZ | 105/296/605<br>606/607/609<br>676/850 |
| Speed decrease | DRZAB | 723/851 |
| Speed increase | DRZAN | 722 |
| Speed limitation | DB | 676 |
| Stacker | STAP | 527/528 |
| Start | START | 161 |
| Start delay | STVERZ | 729 |
| Stepper motor | SMOT | 488/489/490<br>808/809/855<br>856/858/859<br>862/863/870<br>871/873/950<br>956/957/960<br>972/976/977 |
| Stitch condensation | STVD | 105 |
| Thread monitor | FW | 141 |
| Thread trimming | SN | 609 |
| Time needed to switch on | EINZ | 175/528/889 |
| Transportation motor | TPM | 592/593 |

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## 11.4 List of Parameters YA 322SE (2Z_Y04_1.HEX)

| No. | Function (Meaning) | Level | Range of Values | Value | Standard |
|---|---|---|---|---|---|
| 105 | (AR/DRZ/STVD) Speed for front backtack/stitch condensation | A,B,C | 100 - 6400 | 3500 | Kl. 1 |
| 116 | (SANL) Soft start stitches | A,B,C | 0 - 255 | 6 | Kl. 1 |
| 128 | (PR/STZA) Stitches for seam section 1 | A,B,C | 0 - 255 | 20 | Kl. 1 |
| 131 | (PR/STZA) Stitches for seam section 4 | A,B,C | 0 - 255 | 6 | Kl. 1 |
| 132 | (PR/STZA) Stitches for seam section 5 | A,B,C | 0 - 255 | 6 | Kl. 1 |
| 133 | (PR/STZA) Stitches for seam section 6 | A,B,C | 0 - 255 | 6 | Kl. 1 |
| 141 | (FW/STZA) Number of stitches until bobbin thread monitor signal becomes active<br>(signal suppression on bobbin thread monitor) | B,C | 0 - 255 | 0 | Kl. 1 |
| 161 | (LS/START) Start delay for start of photocell | A,B,C | 0 - 2550 | 800 | Kl. 1 |
| 174 | (VERZ/STZA) Stitches until output Ax on | A,B,C | 0 - 255 | 20 | Kl. 1 |
| 175 | (EINZ) Time needed to switch on for output Ax | B,C | 0 - 255 | 6 | Kl. 1 |
| 190 | (VERZ) Delay t2 | B,C | 0 - 2550 | 60 | Kl. 1 |
| 191 | (VERZ) Delay t3 | B,C | 0 - 2550 | 400 | Kl. 1 |
| 192 | (VERZ) Delay t4 | A,B,C | 0 - 2550 | 1550 | Kl. 1 |
| 194 | (VERZ) Delay t6 | A,B,C | 0 - 2550 | 2550 | Kl. 1 |
| 197 | (VERZ) Delay t11 | A,B,C | 0 - 2550 | 850 | Kl. 1 |
| 294 | (EINST/STZA) Einschaltdauer (Stiche) für die Schlitzkantensteuerung (SKS) | A,B,C | 0 - 255 | 16 | Kl. 1 |
| 296 | (DRZ/KST) Speed for control of edge | A,B,C | 10 - 2550 | 200 | Kl. 1 |
| 488 | (SMOT) reduction ratio for stepping motor 1 | C | 0 - 99 | 2 | Kl. 1 |
| 489 | (SMOT) number of steps after stepping motor 1 zero position | B,C | 0 - 100 | 30 | Kl. 1 |
| 490 | (BZUF/SMOT) tape feed<br>I via sensor<br>II in sync with main drive | B,C | 0 - 100 | 30 | Kl. 1 |
| 527 | (STAP/TUPF/VERZ) Delay (ms) from stacker on to holder / stopper off | A,B,C | 0 - 255 | 30 | Kl. 1 |
| 528 | (EINZ/STAP) Duration (ms) of stacker function | B,C | 0 - 2550 | 100 | Kl. 1 |
| 592 | (TPM) Transportation motor quick | B,C | 1 - 4 | 1 | Kl. 1 |
| 593 | (TPM) Transportation motor slow | A,B,C | 10 - 2550 | 400 | Kl. 1 |
| 605 | (DRZ/ANZ) Actual speed in display<br>I yes<br>II no | B,C | | I | Kl. 1 |
| 606 | (DRZ) Speed: level 1 (min.) | B,C | 30 - 640 | 200 | Kl. 1 |
| 607 | (DRZ) Speed: level 12 (max.) | B,C | 100 - 10000 | 5800 | Kl. 1 |
| 609 | (SN/DRZ) Trimming speed 1 | B,C | 30 - 300 | 200 | Kl. 1 |
| 676 | (DRZ/DB) Speed adjustment via potentiometer possible<br>I yes<br>II no | B,C | | I | Kl. 1 |
| 700 | (NAPO) Needle position 0<br>(reference position of the needle) | B,C | 0 - 239 | 0 | Kl. 1 |
| 701 | (NAPO) Angular adjustment<br>I with handwheel (teach-in)<br>II by keys (+/-) | B,C | | I | Kl. 1 |
| 702 | (NAPO) Needle position 1 (needle down) | B,C | 0 - 239 | 200 | Kl. 1 |
| 703 | (NAPO) Needle position 2 (thread take-up lever up) | B,C | 0 - 239 | 24 | Kl. 1 |
| 718 | (STBR) Timing of residual brake<br>(0 = brake off) | C | 0 - 100 | 0 | Kl. 1 |
| 722 | (DRZAN) Acceleration ramp<br>1 gradual<br>50 steep | C | 1 - 50 | 45 | Kl. 1 |
| 723 | (DRZAB) Brake ramp<br>1 gradual<br>50 steep | C | 1 - 50 | 25 | Kl. 1 |

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| | | | | | |
|---|---|---|---|---|---|
| 729 | (STVERZ/PF) Start delay after lowering presser foot | B,C | 0 - 2550 | 120 | Kl. 1 |
| 730 | (PF/VERZ) Lift delay for presser foot after seam end | C | 0 - 2550 | 30 | Kl. 1 |
| 797 | (HWT) Hardware test<br>I yes<br>II no | B,C | | II | Kl. 1 |
| 798 | (EBC) Programming level C<br>I yes<br>II no | B,C | | II | Kl. 1 |
| 800 | (DRR) Direction of motor rotation viewed from belt pulley<br>I left-hand rotation<br>II right-hand rotation | B,C | | II | Kl. 1 |
| 805 | (DRR/ZUSAN) Rotational direction of auxiliary drive<br>I lefthand rotation<br>II righthand rotation | B,C | | II | Kl. 1 |
| 808 | (DRR/ZUSAN/SMOT) Rotating direction of stepping motor 1<br>I lefthand rotation<br>II righthand rotation | B,C | | II | Kl. 1 |
| 809 | (DRR/ZUSAN/SMOT) Rotating direction of stepping motor 2<br>I lefthand rotation<br>II righthand rotation | B,C | | II | Kl. 1 |
| 850 | (DRZ) Maximum motor speed | C | | 4500 | Kl. 1 |
| 851 | (PR/DRZAB) Brake ramp for stitch-count seams<br>I steep<br>II gradual | C | | I | Kl. 1 |
| 855 | (SMOT) maximum speed of stepping motor 2 | B,C | 100 - 9900 | 3000 | Kl. 1 |
| 856 | (SMOT) Start-/stopping speed of stepping motor 2 | B,C | 10 - 2550 | 350 | Kl. 1 |
| 858 | (SMOT) acceleration of stepping motor 2 | B,C | 1 - 255 | 5 | Kl. 1 |
| 859 | (SMOT) reduction ratio of main motor/stepping motor 2 | B,C | 0 - 99 | 2 | Kl. 1 |
| 862 | (SMOT) maximum current of stepping motor 2 (255 = 3.6 A) | B,C | 1 - 255 | 160 | Kl. 1 |
| 863 | (SMOT) stationary current of stepping motor 2 (255 = 3.6 A) | B,C | 0 - 255 | 70 | Kl. 1 |
| 870 | (SMOT) maximum speed of stepping motor 1 | B,C | 100 - 9900 | 2000 | Kl. 1 |
| 871 | (SMOT) Start-/stopping speed of stepping motor 1 | B,C | 10 - 990 | 500 | Kl. 1 |
| 873 | (SMOT) acceleration of stepping motor 1 | B,C | 0 - 255 | 4 | Kl. 1 |
| 884 | (REG) Proportional amplification of the speed control (in general) | C | 4 - 50 | 13 | Kl. 1 |
| 885 | (REG) Integral amplification of the speed control | C | 0 - 100 | 30 | Kl. 1 |
| 886 | (REG) Proportional amplification of the order controllers | C | 1 - 50 | 20 | Kl. 1 |
| 887 | (REG) Differential amplification of the order controllers | C | 1 - 100 | 30 | Kl. 1 |
| 889 | (EINZ/REG) Time required for order controlling (0 = always) | C | 0 - 1000 | 200 | Kl. 1 |
| 890 | (REG) Proportional amplification of the superior order controllers for the residual brake | C | 1 - 50 | 25 | Kl. 1 |
| 891 | (REG) Proportional amplification of the lower speed controllers for the residual brake | C | 1 - 50 | 20 | Kl. 1 |
| 892 | (REG/ZUSAN) Proportional amplification of speed control for auxiliary drive | B,C | 0 - 50 | 1 | Kl. 1 |
| 893 | (REG/ZUSAN) Integral amplification of speed control for auxiliary drive | C | 0 - 100 | 4 | Kl. 1 |
| 894 | (REG) Rotational direction of motor and synchronizer<br>I different<br>II same | C | | I | Kl. 1 |
| 898 | (SONST) Number of motor poles<br>I 4 poles<br>II 6 poles | C | | II | Kl. 1 |

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| | | | | | |
|---|---|---|---|---|---|
| 899 | (VERZ/ZUSAN) Delay of auxiliary drive | B,C | 0 - 100 | 50 | Kl. 1 |
| 923 | (FUEGEH) guiding aid always on<br>I yes<br>II no | A,B,C | | II | Kl. 1 |
| 924 | (FUEGEH/VERZ) delay for guiding aid closure | B,C | 0 - 2550 | 800 | Kl. 1 |
| 950 | (SMOT/RAFF) gathering value 1 of stepping motor axis 1 | A,B,C | 0 - 90 | 0 | Kl. 1 |
| 956 | (SMOT) maximum current of stepping motor 1 (255 = 3.6 A) | B,C | 0 - 255 | 150 | Kl. 1 |
| 957 | (SMOT) stationary current of stepping motor 1 (255 = 3.6 A) | B,C | 0 - 255 | 70 | Kl. 1 |
| 960 | (RAFF/SMOT) gathering value 1 of stepping motor axis 2 | A,B,C | 0 - 90 | 0 | Kl. 1 |
| 972 | (SMOT) number of stepping motor axes<br>0 none<br>1 one (only the first)<br>2 one (only the second)<br>3 two | B,C | 0 - 3 | 0 | Kl. 1 |
| 976 | (SMOT) stepping motor 1 - mode<br>1 full step<br>2 half step<br>3 quarter step<br>4 eighth step | A,B,C | 1 - 3 | 2 | Kl. 1 |
| 977 | (SMOT) stepping motor 2 - mode<br>1 full step<br>2 half step<br>3 quarter step<br>4 eighth step | B,C | 1 - 3 | 2 | Kl. 1 |

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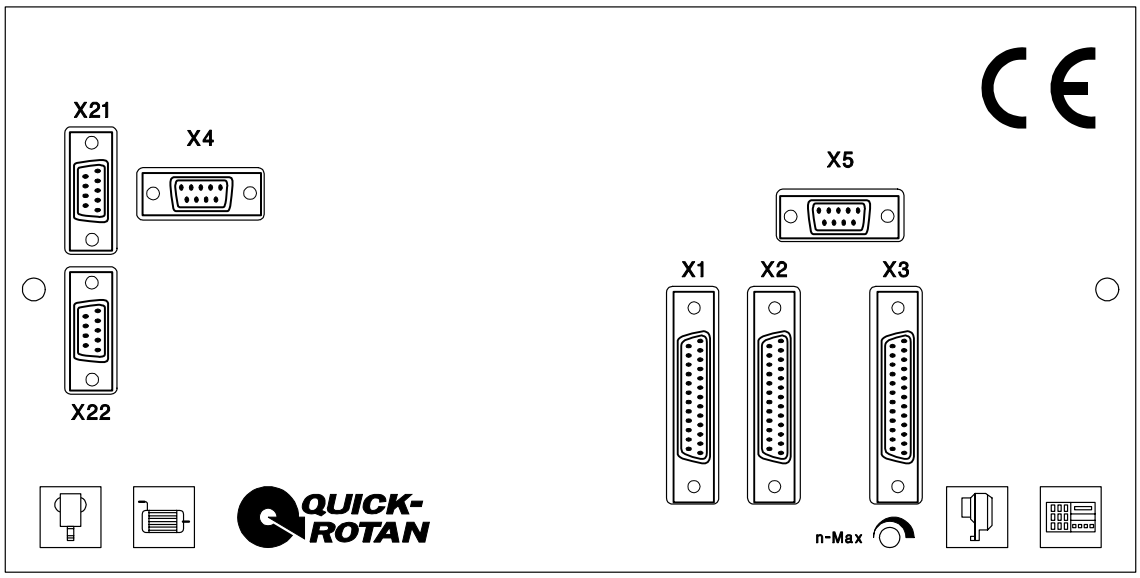
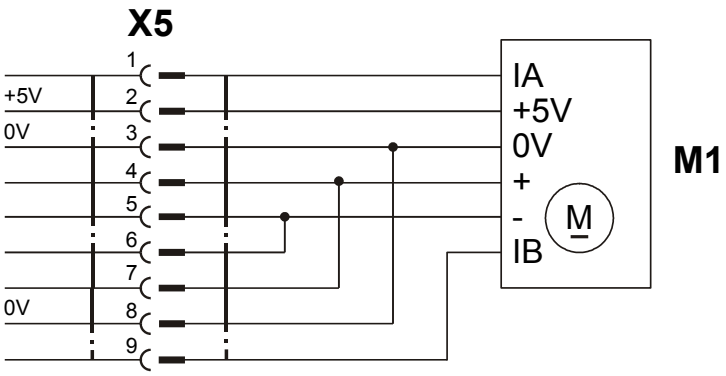
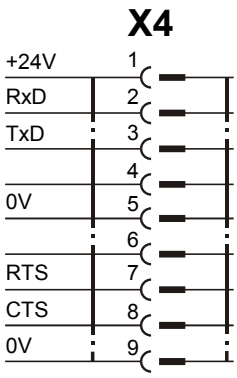
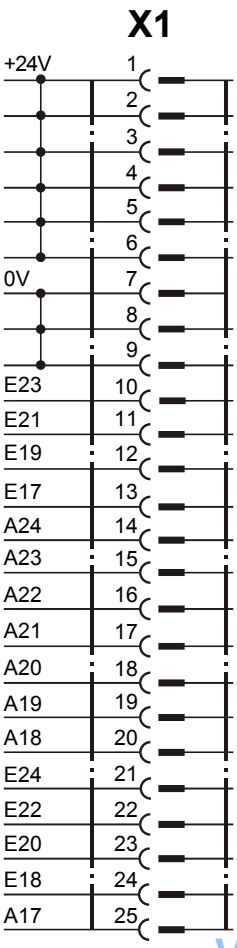
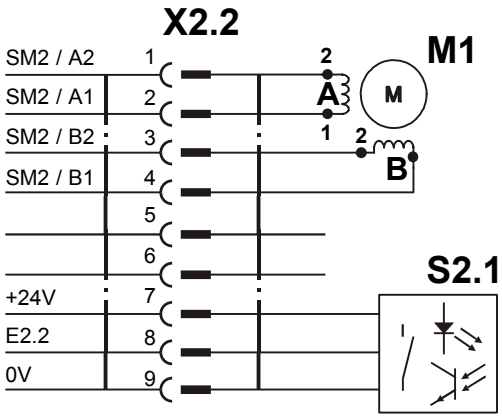
# 12. Electrical Connections Diagram YA321SE

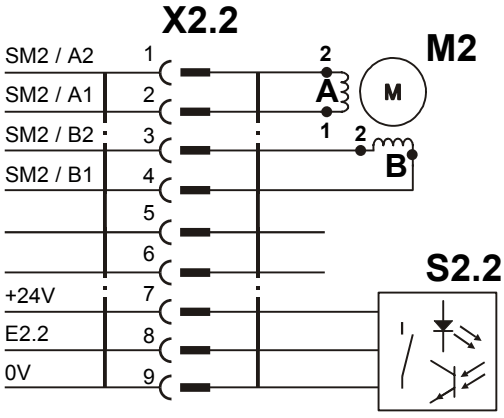
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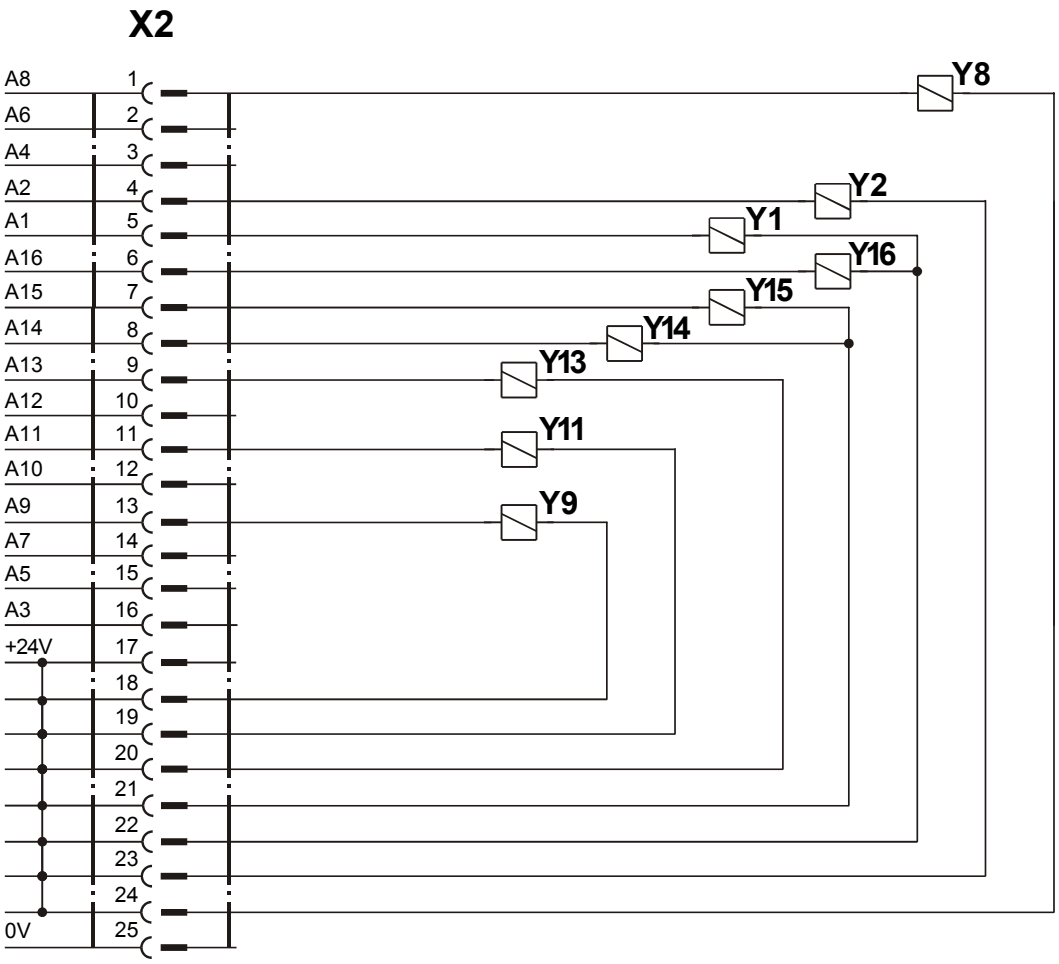


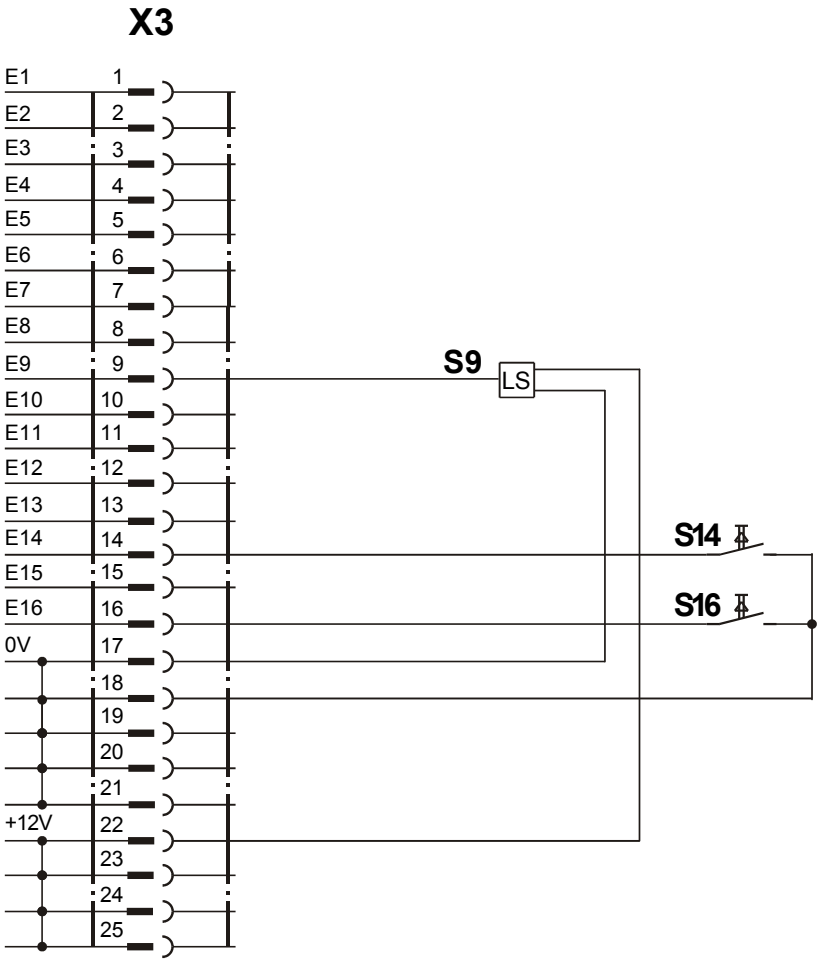


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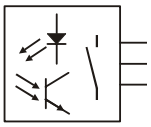
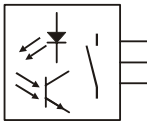
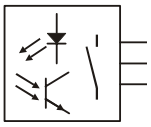
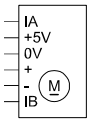
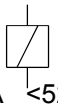
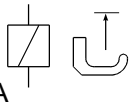
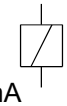
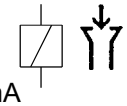
Bedeutung der Magnete bzw. Magnetventile, Taster / Meaning of magnets and/or solenoids and keys
Signification des aimants resp. solenoides et touches / Significação dos imaõs e/ou as solenoidas e teclas
Significato dei magneti, delle valvole magnetiche e dei tasti / Significación de los imanes y/o los solenoides
y pulsadores / Betekenis van de magneten resp. magneetkleppen, toetsen

| | |
|---|---|
| **S9**  | Start - stopp / start - stop / start - stop /<br>arranque - paragem / start - stop / arranque - parada /<br>start - stop |
| **S14** | Stopp / stop / stop /<br>paragem / stop / parada /<br>stop |
| **S16** | Start manuell / start manuell |
| **S2.1**  | Lichtschranke für Referenzpositon des Schrittmotors 1 / reference position light barrier of the stepping motor 1 / barrièr lumineuse du moteur pas á pas 1 / barreira luminosa do motor de passo 1 / cellula fotoelecttrica del motore step 1 / fotocélula del motor de pasos 1 / foto-elektrische beveiliging van de stappen motor 1 |
| **S2.2**  | Lichtschranke für Referenzpositon des Schrittmotors 2 / reference position light barrier of the stepping motor 2 / barrièr lumineuse du moteur pas á pas 2 / barreira luminosa do motor de passo 2 / cellula fotoelecttrica del motore step 2 / fotocélula del motor de pasos 2 / foto-elektrische beveiliging van de stappen motor 2 |
| **M1**   | Bandantrieb / tape feed / transport de ruban /<br>transporte de cinta / trasporto nastro / transportador de cinta /<br>bandtransport |
| **Y1**<br>I max<br>100 mA  <527> | Stapler / stacker /<br>empileur / empilhadeira /<br>impilatore / apiladora / hefinstrument |
| **Y2**<br>I max<br>100 mA | Stoffführungsrolle am Apparat / material guide at the attachment |
| **Y8**<br>I max<br>100 mA | Transport anheben / lift transport |
| **Y9**<br>I max<br>100 mA  | Presserfuß heben / presser foot up / pied presseur en haut /<br>calcador em cima/ alzapiedino su / prensatelas arriba / drukvoet optillen |
| **Y11**<br>I max<br>100 mA  | Presserfußdruck / presser foot pressure |
| **Y13**<br>I max<br>100 mA  | Stoffabfall saugen / material waste vacuuming / aspiration de déchets /<br>aspirar de descida / aspirare immondizie / aspirar de desechos /<br>afval zuigen |
| | |

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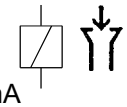
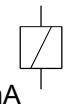
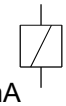
Bedeutung der Magnete bzw. Magnetventile, Taster / Meaning of magnets and/or solenoids and keys
Signification des aimants resp. solenoides et touches / Significação dos imaõs e/ou as solenoidas e teclas
Significato dei magneti, delle valvole magnetiche e dei tasti / Significación de los imanes y/o los solenoides
y pulsadores / Betekenis van de magneten resp. magneetkleppen, toetsen

| | |
|---|---|
| **Y14**  I max 100 mA | Kette saugen / chain vacuuming / aspiration de chaînette / aspirar de cadeia / aspirare catenella / aspirar cadeneta / zuigen van een ketting |
| **Y15**  I max 100 mA | Apparat-Verschluß / attachment lock |
| **Y16**  I max 100 mA | Tisch blasen / blowing table |

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# 13. Maintenance and Repair

!! Before starting maintenance or repair work, switch off the SERVO-TOP,
separate the drive system from mains power (for instance by pulling out the mains plug)
and wait for the motor to come to a complete stop.

General maintenance work must only be done by specially trained personnel paying close attention to the operating instructions.

The SERVO-TOP ist largely maintenance-free.
However, make sure to perform the following maintenance work:

Depending on the operating conditions, clean the drive system regularly, at least once a week, from any dust or lint. Make sure in particular that the ventilation louvres and cooling fins of the motor, especially the cooling fins between the motor and the control box, are perfectly clean (Fig. 13).

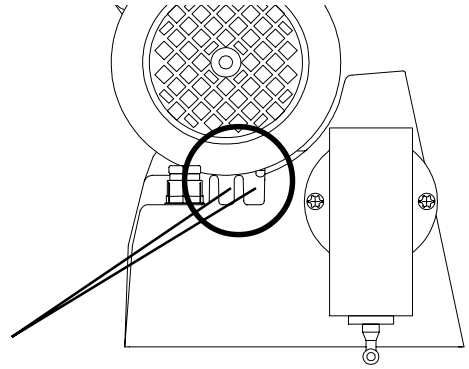


**Fig. 13**

Remove any threads caught on the synchronizer shaft or on the belt pulley and/or motor shaft.

Check if the drive system is perfectly secured to the stand and that the accessories (synchronizer on machine shaft, speed control unit on control box) are safely mounted in their respective positions.

Check the drive belt for any wear and for correct tension.
Incorrect belt tension can increase noise and vibrations.

When opening covers or removing parts, apart from those removable by hand,
live elements can be exposed.
Connections can also be electrically live.

If you require to open the drive system before starting maintenance or repair work or before replacing any parts, disconnect the drive system from any and all power sources.

If maintenance or repair work on the open unit is unavoidable, this may only be done by qualified personnel familiar with the risks involved. Observe all regulations as per EN 50110.

There can still be capacitors carrying a charge in the power electronics system, even when the drive system has been disconnected from all power sources. To avoid injury by electrical shock, it is therefore essential to wait at least 10 minutes between mains power shutoff and opening the control box.

In order to protect semi-conductor components from overvoltage, use only high-resistivity measuring equipment when making checks on the control system.

Any repair or servicing work requiring skilled knowhow may only be done by qualified personnel authorized by Quick-Rotan.

We emphasize that in accordance with the product liability law we are under no responsibility for damages caused by our products if these are due to

- unqualified repair
- the use of components not authorized by us
- actions made by any persons not authorized by us.

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