

as from S/N (control board): 1003061

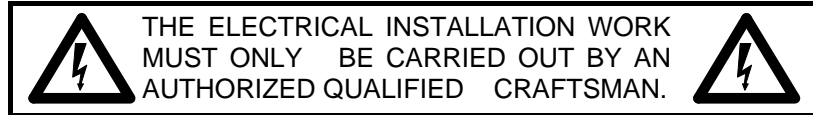
# JT

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## 1 ELECTRICAL SAFETY



THE JT CONTROL SYSTEM CARRIES DANGEROUS CURRENT WHEN IT HAS BEEN CONNECTED TO THE MAINS.

THE JT CONTROL SYSTEM MUST WHEN IN OPERATION BE EARTHED VIA A GROUND CONDUCTOR WHICH IS CONNECTED TO THE FRAME TERMINAL **PE**.

INTERFERENCE VOLTAGE MAY BE PRESENT ALSO IN A SWITCHED OFF JT CONTROL SYSTEM.

CHECK BY MEASURING WITH A VOLTMETER AT THE MAINS TERMINALS AND THE RELAY OUTPUT TERMINALS THAT THE JT CONTROL SYSTEM IS DEENERGIZED BEFORE COMMENCING WORK.

### Warning symbols

For your own safety, please pay particular attention to the instructions marked with the following symbols:



Danger! High voltage



General warning

## 2 NOTES ON EMC LEGISLATION

The CE mark applied refers to [German] legislation of 09.11.92 governing electromagnetic compatibility (EMC).

Installation of the JT control system must be carried out by staff trained in EMC.

The JT control system complies with the following standards or equivalent documents.

1. EN 50081-1
2. EN 50082-2

### **The JT control system may be used in**

- the home, commercial and trade sectors and small business
- industry

**providing that the following measures are observed:**  
(as shown in the Appendix "Connection Diagram")

- The delivered manufacturer`s mains filter must be used.
- All control cables are screened and connected to the control equipment at one end.
- The connecting cable between the JT control system and the vibrator is screened and connected at both ends.
- The corresponding measures concerning the cabling in chapter 7.3 must be observed.

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#### 4 PREFACE

The information contained in this manual refers exclusively to JT control systems.

It is essential that you read this manual before installation and commissioning.

The limits specified in the technical data must be observed when using the control system.

The guarantee for manufacturers' drives and equipment does not cover defects caused by misuse or incorrect use of these control systems.

The manual is divided into individual sections in accordance with the table of contents.

Section 1 "Electrical safety" and Section 2 "Notes on EMC legislation" must be read before working with the JT control system.

It is essential that the user familiarises himself with this manual before using the drive/equipment or before carrying out adjustment work specific to the operations.

Please contact the manufacturer directly if you have any questions about the JT control system.

The manufacturer reserves the right to make product changes without prior notice.

## 5 PURPOSE

The JT Control Systems are intended for the operation of vibrating systems with manufacturers' electromagnetic drives from an a.c. mains.

With the JT Control System the stroke (vibration amplitude) of such an installation can be adjusted from almost 0 to maximum.

In the control mode 'K' (= voltage regulation), fluctuations in the supply voltage of  $\pm 10\%$  have nearly no effect on the stroke.

In the control mode 'Y' (= stroke regulation), fluctuations of  $\pm 10\%$ , as well as a change in the mass conditions, e.g. through bunker pressure, have no effect on the stroke.

## 6 OPERATING PRINCIPLE

With the potentiometer supplied or an external mA- or voltage signal as the setpoint source, the stroke and therefore the feed rate of an electromagnetic vibratory system can be continuously adjusted within certain limits (minimum or maximum value resp.).

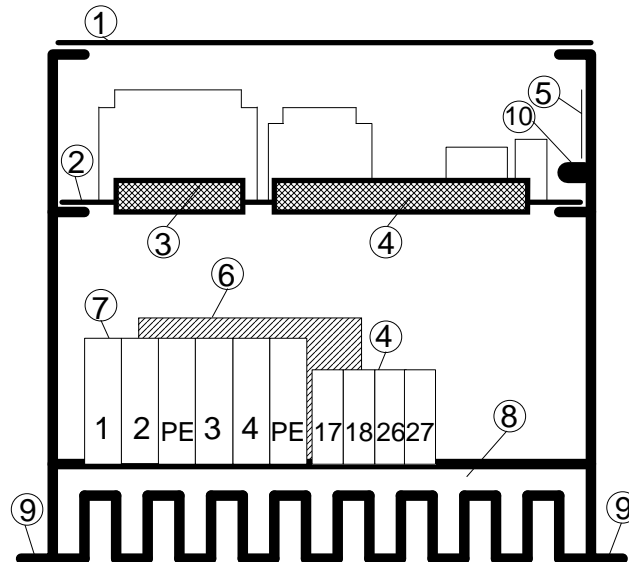
The setpoint signal is compared with the actual value signal. (The actual value signal is, with the control mode 'K', the output voltage of the control system to the drive and, with the control mode 'Y', the signal of the stroke sensor on the vibratory system). The differential signal (regulation deviation) is passed to a PI-action controller, which generates the setting signal for the phase control system. The setting signal determines the firing point of the thyristor-module.

The firing pulses are passed to the thyristor-module for galvanic separation via a firing transformer. Firing takes place only within the positive sinusoidal half-wave. The negative is suppressed by the thyristor. The phase control within the positive sinusoidal half-wave controls the electrical output of voltage and current, which is passed to the vibratory system.

## 7 INSTALLATION

### 7.1 CONSTRUCTION

The major components of the JT control system are as follows:

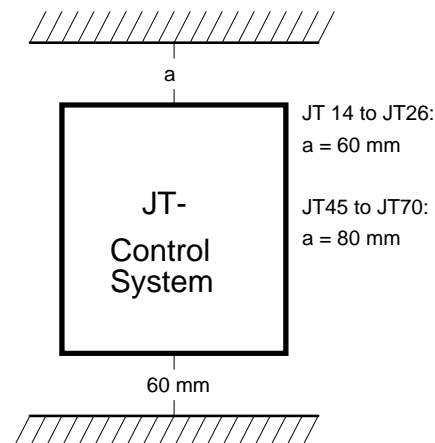


1. Perspex cover
2. Control board
3. Connection plug X3 between control board and power section
4. Control terminals X2
5. Rating plate
6. Thyristor-module with RC snubber network
7. Mains connection/drive/earth terminal X1
8. Heatsink
9. Fixing holes
10. Assembling bolt for screening

### 7.2 NOTES ON INSTALLATION

#### Cooling:

The JT control system is cooled by natural convection. In order to guarantee an adequate air flow, the equipment must be mounted upright and the minimum distances shown in the adjacent illustration observed. The cooling air must be as clean as possible and free of aggressive substances. Should the cooling air contain dust, the cooled areas must be cleaned regularly.



Mounting:

Fixing dimensions, also for the mains filter, are to be found in the appendix.

The JT Control system is fixed on the assembly board with four screws inserted through slots.

Fit four fixing screws, hook on the control unit and tighten the four screws.

The control system should be placed in a shock- and vibration-free position.

**7.3 WIRING**

**Mains and drive cable sizes:**

Values are based on a cable length of 50 m between the control system and drive. The cable diameters must be increased appropriately for longer distances.

Allocation table: Control system / back-up fuse / cable / mains filter

JT-type	2-pole back-up fuse [A, retarded] <sup>1)</sup>	Mains and drive cable cross-section <sup>1) 2)</sup> [mm <sup>2</sup> ]	matching mains filter <sup>3)</sup> Type
JT 14/...	max. 16	2.5	2x16
JT 26/...	max. 35	6.0	2x35
JT 45/...	max. 50	10.0	2x50
JT 70/...	max. 80	25.0	2x80

<sup>1)</sup> adapted to  $I_N$  of the drive.

<sup>2)</sup> The local regulations governing earthing and cables must be observed.

<sup>3)</sup> To be used within the scope of the EC directive 89/336/EEC concerning EMC.

As the connecting cable between electromagnetic drive and stationary terminal box we recommend the use of a flexible cable of the type H07RN-F resp. NSSHöU-J. For the use of screened cables we recommend the type ÖLFLEX 540 CP.

**Additional measures within the scope of the EMC directive 89/336/EEC:**

(also refer to connection diagram in the appendix)

**Mains supply:** For this case, the delivered mains filter must be switched into the mains supply line of the JT control system. The filter must be directly mounted on the left hand side next to the JT control system. Sufficient ground contact must be observed. The connection between the filter (wiring side named „LOAD“) and the JT control system must be as short as possible. For the filter types upto 2x35 the filter-own output wires must be used. As from the filter type 2x50 the connection must be made by single wires of max. 20 cm length.



For the mains supply all filters are fitted with clamps on the „LINE“ side. The connection of the ground conductor is built as threaded bolt as from filter type 2x50.

**Drive connection:** A screened cable between JT control system and drive must be used. The screen connection must be as short as possible and connected to ground on both ends.

#### **Control cable:**

The control cable must be screened. We recommend a screened, multicore flexible cable with a conductor cross-section of 0.5 or 0.75 mm<sup>2</sup> for the control system connection.

N.B.: Earth the cable screen - as short as possible - at the JT control system end. Use the assembling bolt (see 7.1 „Construction“, Pos.10).

The control cables must be positioned at least 0.5 m from the drive cable, to prevent interference.

### **7.4 CONNECTIONS**

Please refer to the connection diagram in the appendix or the connection sheet enclosed with the control system for the assignment of terminals for the mains, drive and control system cables.

N.B.: If the setpoint potentiometer is used, please ensure that the correct connection sequence is observed.

### **7.5 SPECIAL CHARACTERISTICS**

#### **7.5.1 Regulator release**

The control system is fitted with an input for the regulator release (control system terminals X2.14/15).

The regulator is blocked when the terminals are open. The drive will be idle.

The regulator is released when the terminals are shorted. The drive will vibrate.



When the drive is switched off by the regulator release, connection terminals X1.3/4 will not be disconnected from the mains.

If the operating process requires the drive to be switched on and off frequently, the "regulator release" must be used instead of switching at the mains. The control system therefore remains connected to the mains current.

#### **7.5.2 Output-side switching**

It is only permissible to switch the output if the control system is switched off (at the mains end or via the regulator release). Switches or contactors with appropriate maximum loads must be used for this.

When switching between the control system and the drive, the "V" protective unit (see section on "Additional Equipment") must be used. It must remain on the drive when the control system is switched off.

### 7.5.3 Actual value failure protection

The control system is provided with a built-in actual value failure protection facility. If the actual value fails, e.g. through cable fracture on the stroke sensor, the drive is operated with a constant voltage which is reduced as vis-a-vis the maximum output voltage. The stroke can then no longer be influenced via the setpoint. Only after the fault has been corrected is normal operation possible again.

### 7.5.4 Switching on the setpoint signal

If switching is to be carried out in the setpoint cables, relays with gold contacts or hermetically sealed relays must be used, because of the low switching voltage ( $U \leq 10V$ ,  $I \leq 20$  mA). Please note that, with mA signals, the load resistor is located on the control board.

### 7.5.5 Applications for coarse/fine feed setpoint

A setpoint pre-setting is possible for coarse and fine feed in metering and weighing applications. If the setpoint is preset by potentiometers, a second potentiometer is required (to be ordered separately). The setpoint for coarse feed will then be preset from the first potentiometer, and for the fine feed from the second. An example of wiring can be found in the appendix "Connection diagram". Terminals 26/27 only function as post terminals for the slider, i.e. they are not used for the control system.

An external setpoint signal (mA or V) can also be used for the aforementioned applications. A signal of 2 Volts would then be the fine feed value, and 8 volts the coarse feed value for example.

### 7.5.6 Manual/automatic applications

Manual/automatic applications means that the actual setpoint (= automatic) comes from an external source (regulator / PLC as mA or V). A setpoint from a manual potentiometer can be provided by switching instead of the automatic setpoint of the control system (-> manual). An example of wiring can be found in the appendix "Connection diagram".

The selector switch S2 (setpoint source) must then be set to the automatic setpoint signal.

### 7.5.7 Multiple drive applications

Should more than one drive be connected to a control system, it is necessary to connect the single drives through separating diodes (see section on "Additional equipment"). Please consult the manufacturer.

## 8 COMMISSIONING

### 8.1 CHECKS BEFORE SWITCHING ON THE MAINS VOLTAGE

The JT control system is pre-set ex works to the vibrating plant supplied, and can thus be used without any further adjustments.

Exception: A tag on the control system makes reference to further adjustment.



The adjustment trimmers P1-P4 and the selector switches SW 1 and SW2 on the JT control board may not be altered.

Should settings be required other than those supplied, please read the section "Settings/Reconfiguration".

Check the following points before switching on the mains voltage:

1. The control system must be connected to the appropriate vibrating plant
2. The information on the rating plate on the control system must match the details of the drive. It is especially important that the output frequency of the control system matches the vibration frequency of the drive.
3. The nominal mains voltage must lie within the voltage range specified on the rating plate (entry under "V" on the rating plate).
4. The fuse holder with super-quick acting fuse supplied must be inserted in the mains cable to the terminal X1.1.
5. The fuse must have the ampere value matching the control system (see type designation on the rating plate and allocation table in the Section 'Fuses' in the appendix).
6. The control system must be earthed via the PE terminal.
7. The measures to observe EMC legislation must be implemented (see section 2).
8. The mains cable must be connected to the appropriate terminals
9. The drive cable must be connected to the appropriate terminals
10. The appropriate setpoint source must be connected (see type designation on the rating plate and explanation of the type key in the appendix).
11. Set the setpoint source to minimum (0/4 mA, 0V, or setpoint potentiometer to 0).
12. Terminals 14/15 must be bridged if no external regulator release is connected.  
Only applicable if an external regulator release is connected: A break contact must be connected to terminals 14/15 and the bridge used must be removed

Only for control units of Type JT../..E..**K**.. : (voltage regulation)

13. The control terminals X2.17/18 must be bridged.

Only for control units of Type JT../..E..**Y**.. : (stroke regulation)

13. The control terminals X2.17/18 must not be bridged.
14. The stroke sensor supplied with the equipment must be mounted on the vibratory machine and correctly connected to the control system.

### 8.2 SWITCHING ON THE MAINS VOLTAGE

The points listed under 8.1 must be checked before the mains voltage is switched on.

The mains voltage can now be switched on.



A dangerously high voltage will now be present in the JT control system.

The green light emitting diode LED1 „Voltage on“ must now light. The red light emitting diode LED2 „Regulator release“ must be off.

N.B.: If LED2 is on, the regulator release must be obtained by closing the contact at terminals X2.14/15

The make contact of output relay at terminals X2.12/13 is closed. The vibrating plant must now work at minimum vibration amplitude. The setpoint signal can now be slowly set to maximum. The vibration plant must operate at the maximum setpoint with the vibration amplitude, as specified in the technical documentation for the equipment.



When the setpoint signal is increased, consideration must be given to the operating noise level of the vibrating plant. If contact noises can be heard, the vibrating plant must be stopped immediately. The plant can be switched on again after the cause of the problem has been rectified.

If there is no fault in operation, the operating setpoint may be adjusted and the material to be conveyed supplied.

Should further adjustment of the control system be required due to customer's circumstances, please read the section "Settings / Reconfiguration".

### **8.3 SETPOINT INTEGRATOR**

In applications where the vibratory machine is to reach the preset stroke slowly, there is the possibility of delaying the setpoint signal by means of a soft start stage.

The acceleration period can be infinitely preset between 0 and 15 seconds with the trimming potentiometer P5 on the control board. Trimming potentiometer P5 at the left-hand stop corresponds to approx. 0 seconds. Trimming potentiometer P5 turned clockwise up to the right-hand stop corresponds to 15 seconds.

N.B.: P5 can be actuated with a narrow screwdriver through the opening in the perspex cover. Please consult the position diagram to find the location of P5 (see 9.1).

#### **8.4 ACTUAL VALUE OUTPUT**

The control system is equipped with an actual value output 0 - 10 V= as standard. It can be used for connecting display/monitoring units. This output has not been calibrated in the works. Calibrating is done with the trimming potentiometer P6 on the control board. If the actual value output is used, the output must be calibrated at maximum setpoint value. To do this, connect a voltmeter (measurement range 20 V=,  $R_i > 10\text{ K}\Omega$ ) to the control terminals X2.11 (+) and X2.7 (0V). Set 10 V= on the voltmeter with P6 by turning anticlockwise. After that the corresponding display/monitoring unit can be connected.

**NOTE:** P6 can be actuated with a narrow screwdriver through the opening in the perspex cover. Please consult the position diagram for the location of P6 (see 9.1).

When applying the stroke control unit 'J', refer to the corresponding manual, to set the actual value output.

#### **8.5 OUTPUT RELAY**

A voltageless make contact of the output relay is available at the control terminals X2.12/13.

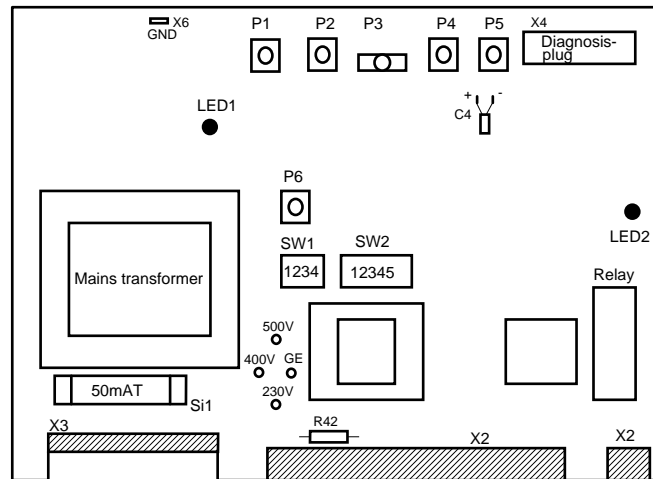
Contact closed: Mains voltage on and regulator release provided, i.e. control system in operation.

Contact open: Mains voltage off and/or regulator release not provided.

Contact rating: see 'Technical data'

## 9 SETTINGS / RECONFIGURATION

### 9.1 POSITION OF ADJ. ELEMENTS and COMPONENTS



LED1: Light emitting diode (green) for „Voltage on“  
LED2: Light emitting diode (red) for „Regulator release“

### 9.2 EXPLANATION OF ADJUSTMENT ELEMENTS



#### IMPORTANT NOTE:

Unauthorised resetting of the adjustment elements can cause malfunctions in the control system.

It is essential to read the following before changing the settings.

#### Trimming potentiometer:

There are six trimming potentiometers on the control board.

Function of the trimming potentiometers:

- P1: Limitation of the maximum output voltage \*)
- P2: Adjustment of the minimum output voltage
- P3: Matching the actual value signal
- P4: Setting the rated stroke
- P5: Adjustment of the soft start time
- P6: Calibration of the actual value output

\*) P1 has been sealed in the works and must **not** be adjusted!

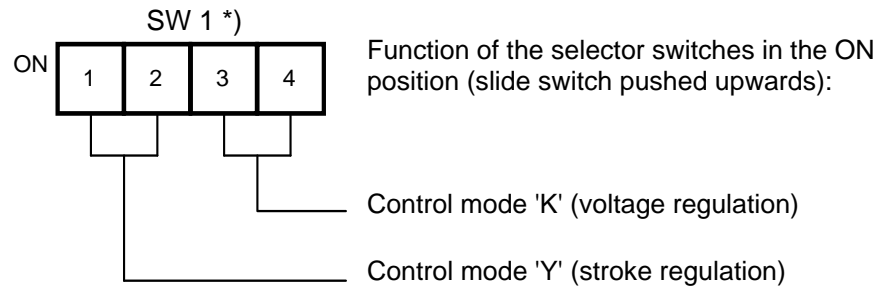
#### Selector switch (DIP switch):

A four-way (SW1) and a 5-way (SW2) selector switch (DIP switches) is arranged on the control board.

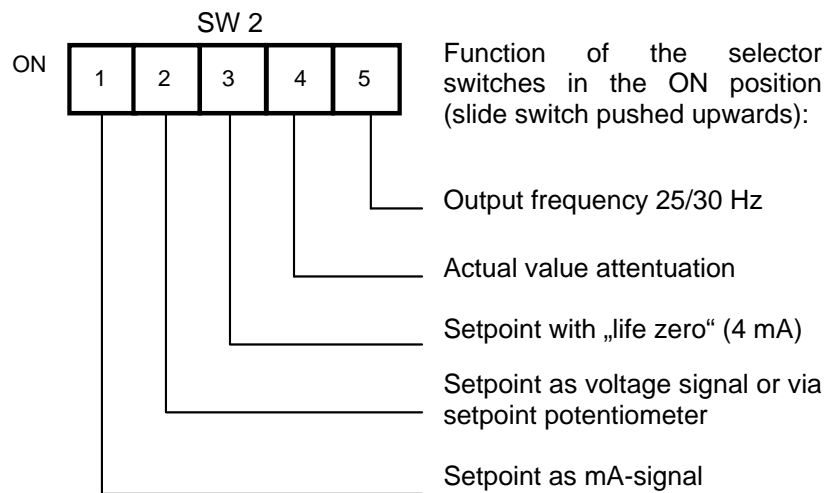
The individual switches are sliding switches. These are numbered 1-4 and 1-5 from left to right respectively.



Operation of the sliding switches is permissible only when the power (mains) is turned off. The perspex cover of the control system must be removed for adjustment.



\*) SW 1 has been sealed in the works and must **not** be adjusted !



### 9.3 MATCHING THE SETPOINT SOURCE

The control system is matched to the various setpoint sources with selector switch SW2 (1-3).

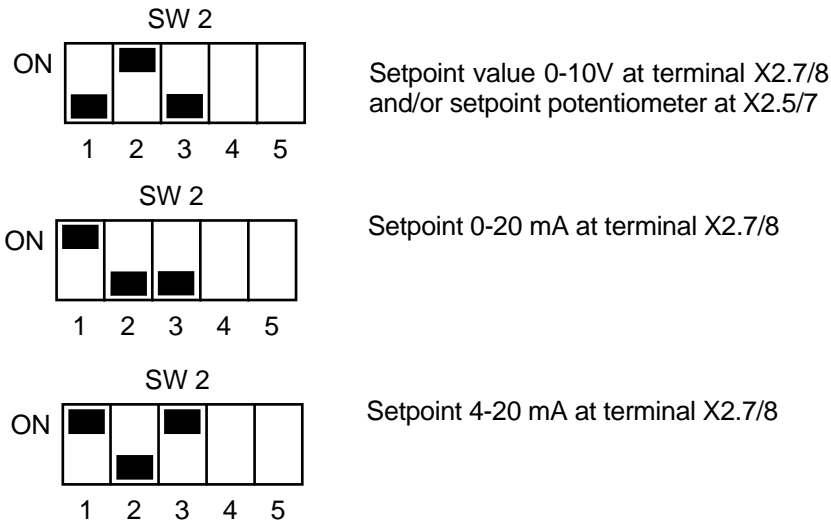


Operation of the sliding switches is permissible only when the power (mains) is turned off. The perspex cover of the control system must be removed for adjustment.

To gain access to the slide switches, the cap of SW 2 must be raised on the right-hand side with a small screwdriver. On completion of the work, close the cap again and screw the perspex cover on tight.

N.B.: Changing the setting of SW2 (1-3) does not necessitate resetting the trimmers P1-P6.

Setting switches SW 2 (1-3):



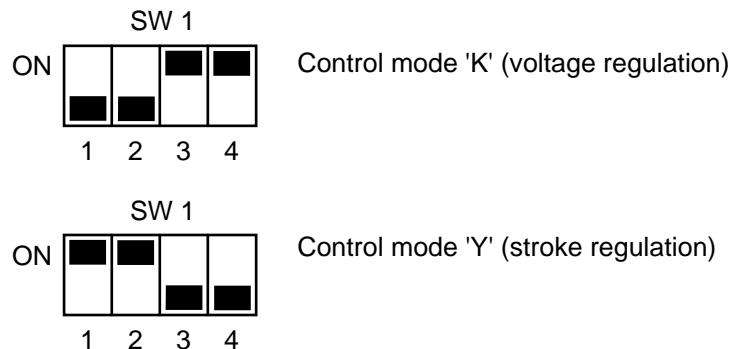
#### 9.4 FIXING THE CONTROL MODE

The control mode is determined with selector switch SW 1.



Operation of the sliding switches is permissible only when the power (mains) is turned off. The perspex cover of the control system must be removed for adjustment.

To gain access to the slide switches, the cap of SW 1 must be raised on the right-hand side with a small screwdriver. On completion of the work, close the cap again and screw the perspex cover on tight.



N.B.: The switches of SW 1 must always be switched in pairs. Changing the control mode requires a readjustment of the trimmers P1-P6. **This may only be carried out by the manufacturer's service department.**

#### 9.5 CHOOSING THE OUTPUT FREQUENCY

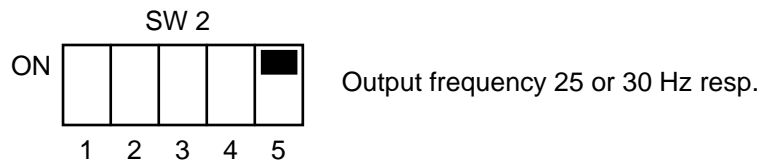
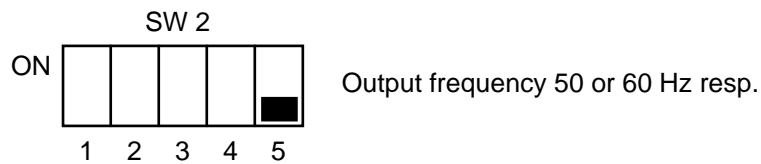
The output frequency of the control system is determined with SW 2 (5).



Operation of the sliding switches is permissible only when the power (mains) is turned off. The perspex cover of the control system must be removed for adjustment.

To gain access to the slide switch, the cap of SW 2 must be raised on the right-hand side with a small screwdriver. On completion of the work, close the cap again and screw the perspex cover on tight.





N.B.: Changing the output frequency requires a readjustment of the trimmers P1-P6. **This may only be carried out by the manufacturer's service department.**

### 9.6 MATCHING THE MAINS VOLTAGE

There is a selector plug on the control board for selecting the mains voltage.



Selector plug carries mains voltage.

Control system **must** be isolated from the mains before the selector plug is re-plugged. Check for isolation from the supply! The perspex cover of the control system must be removed.

N.B.: Changing the mains voltage requires a readjustment of the trimmers P1-P6. **This may only be carried out by the manufacturer's service department.**

Mains voltage between	Selector plug position
200 - 250 V	GE - 230
380 - 440 V	GE - 400
460 - 525 V	GE - 500

Pull selector plug with insulated pointed pliers and plug into new position.

### 9.7 CONTROL SYSTEM CALIBRATION

The control system should be calibrated by the **manufacturer's service department**.

Slight stroke over- or undershooting in the upper max. vibration range can be readjusted with the trimming potentiometer P4.

### 9.8 PI-REGULATOR

Due to the capacitor C4 (see 9.1) the control characteristic is affected. Increasing the capacitor value will result in a higher dampening of the regulation. The standard value is 2.2 $\mu$ F / 16V for voltage regulation. For stroke regulation in conjunction with sensor JSEN1 C4 will be increased to 4.4 $\mu$ F (2x 2.2 $\mu$ F in parallel). This is marked on the rating plate with the addition „-005“.

C4 is an electrolyte-capacitor. Pay particular attention to the exact polarity when soldering in.

### **9.9 STROKE SENSOR CONNECTION**

For stroke regulation the sensor JSEN1 must be connected to the control system as an actual value source. The sensor output signal, between 0 mA and max. 20mA, is proportional to the stroke. Within the JT control system this mA-signal is converted into a voltage signal by using resistor R42 [390Ω] (see 9.1). When combining the JT control system with the sensor type G5/Y resp. G6/Y (almost in existing installations), the resistor R42 must be removed using a side cutting pliers.

### **10 MAINTENANCE**

The JT control system is largely maintenance-free.

However, under very dusty conditions, regular cleaning is essential. The operating current of the drive should be measured during each maintenance inspection with a TRMS ammeter. In addition, the maximum vibration amplitude of the vibrating plant must be checked (see the documentation on the drive for the nominal values)

### **11 FAULT FINDING**

Please make a note of the following details before reporting a defect to our service department:

- type of the control system (see rating plate)
- control system number (see rating plate)
- Serial number of the power stage (on the heatsink)
- Serial number of the control board (on the underside of the control board)
- mains voltage (measured)
- drive data
- defects established

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## 12 ADDITIONAL EQUIPMENT

The following additional equipment is available for the JT control system:

- Stroke control unit "**J**"  
Limit value switch to monitor the stroke within MIN/MAX limit value contacts.
- Fault signalling unit "**H**"  
Current relay to monitor the drive current. If the minimum level is not reached, e.g. due to a cable breakage, a fault signalling contact is closed.
- Motor potentiometer "**P**"  
This unit is required for remote adjustment of the setpoint value via „+/-“ switches and for the setpoint potentiometer for larger cable distances.
- Setpoint voltage source "**Q**"  
Provides a constant voltage of 10 V= for the setpoint potentiometers.
- Protective unit "**V**"  
Required for protection of the drive, when switching between the control system and the drive takes place.
- Separating diodes "**F**"  
When more than one drive is connected to a control system, it may be necessary to install this component to prevent mutual electrical interference.
- Protective device "**N**"  
Necessary to limit the current in drives protected for use in hazardous (Ex.) locations. Must be connected between the control system and said drive.

## 13 APPENDIX

### 13.1 TECHNICAL DATA

#### POWER STAGE

Nominal mains voltage	230 V, 400 V, 500 V, (2Ph/1Ph+N), switchable
Mains voltage ranges	200 - 250 V 380 - 440 V 460 - 525 V
Perm. voltage fluctuations	+ 5 %, (based on mains voltage range max.) - 10 %, (based on mains vol- tage range min.)
Nominal mains frequency	50/60 Hz; $\pm 1$ %
max. output current	14 / 26 / 45 / 70 A
Output frequency	50 or 25 Hz 60 or 30 Hz
Max. power dissipation $P_v$ (W)	

JT	14	26	45	70
$P_v$	21	39	68	105

#### CONTROL AND REGULATION SECTION

Supply voltage	as mains voltage
Internal voltages	$\pm 15V$ stabilized, short-circuit proof +10V stabilized, short circuit proof, for max. 4 setpoint po- tentiometers (5 K $\Omega$ )
Setpoint input	0/4 - 20 mA, int. load 250 $\Omega$ ; 0 - 10 V; 0/1 - 5 V; selectable by DIP-switch
Setpoint integrator	adjustable (0 - 15 sec)
Actual value input	adjustable sensitivity; failure protection; with stroke regulation: 0 - 10 V AC/DC; internal load when combined with sensor JSEN1: 390 $\Omega$ ; with voltage regulation: 0 - $U_{mains}$ (V)
Regulator	PI-characteristics
Setpoint linearisation	activated at voltage regulation mode
Actual value output	0 - 10 V, $R_L \geq 10$ K $\Omega$

Indicating light	2 x LED; one for 'voltage on', the other one for 'regulator release'
Regulator release	via external potentialfree break contact; closed-circuit principle
Operating indication	relay make contact, switching capacity: 1A/250VAC/30VDC. Ext. contactors must be provided with RC- or VDR protective circuits resp. free-running diodes

OTHER DATA

Tests	EN 50081-1 EN 50082-2
Type of cooling	air self-cooling
Max. installation altitude	1000 m (if over 1000m: please consult manufacturer)
Perm. moisture stress	DIN 40040      F
Degree of protection (DIN 40050)	IP 00
Operating temperature	0°C to + 45°C
Storage and transport temp.	- 10°C to + 85°C
Installation position	vertical
Perm. constant vibration level	≤ 0.5 G
Weight	3.5 kg
Dimensions	190 x 160 mm (WxH) base surface 167 mm deep

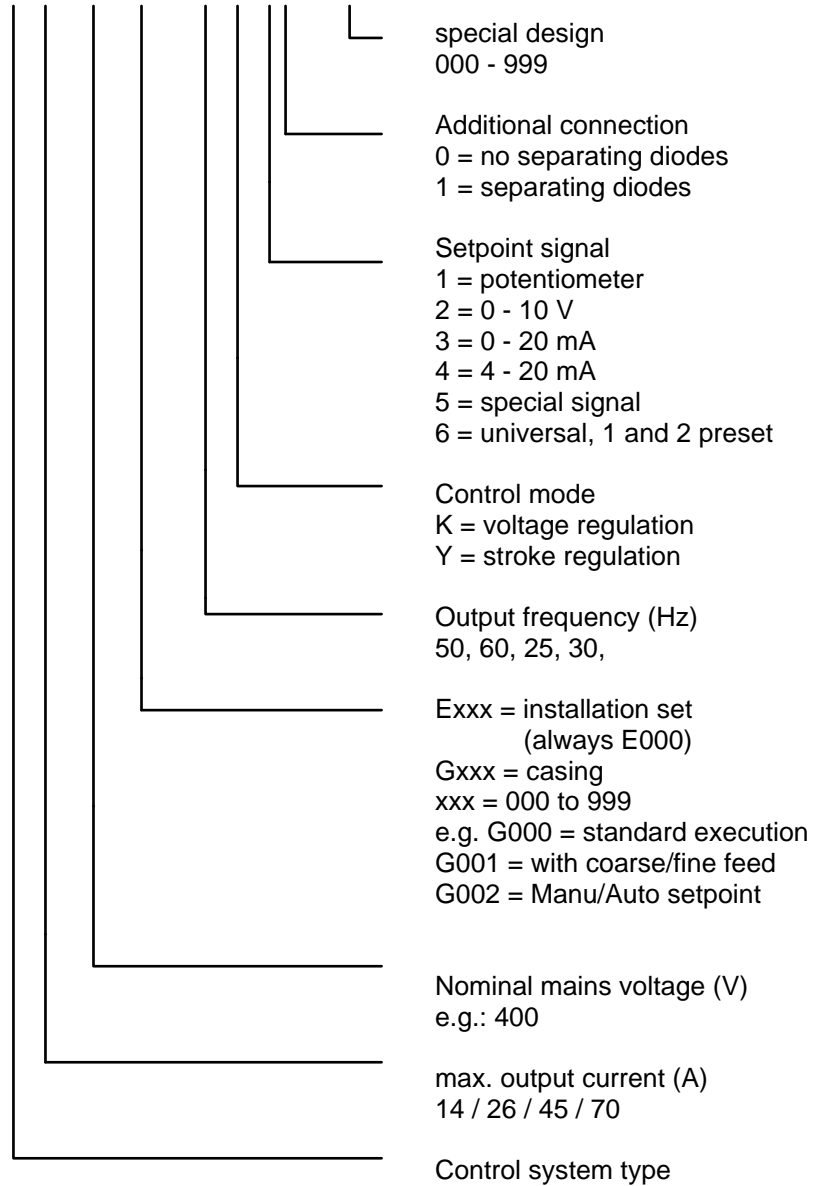
MAINS FILTER

Filter Type	nominal volt. [V]	nominal current [A]	leakage current [mA]	Connection at „LOAD“ [mm <sup>2</sup> ]	Weight [kg]
2x16	500	16	2,5	4,0 / cable	2,0
2x35	500	35	2,5	4,0 /cable	2,0
2x50	500	50	2,5	25 / terminal	3,5
2x80	500	80	5,1	25 / terminal	3,5

### 13.2 TYPE KEY

The designation of the JT control system on the rating plate is made up as follows:

JT 14 / 400 Exxx - 50 K 10 - yyy



### 13.3 SCOPE OF SUPPLY

The following are supplied with the JT control system:

- 1 setpoint value potentiometer with scale and rotary knob
- 1 connection diagram
- 1 fuse (super-quick acting)
- 1 fuse holder

Additional supply within the validity of the EMC-Directive:

- 1 Mains filter (JT-filter) / (as far as not otherwise ordered)

Additionally required for control system type JT../..E000-..Y.. (stroke regulation):

- 1 stroke sensor JSEN1 (resp. G5/Y or G6/Y)

### 13.4 FUSES

Allocation table: Fuse holder / control system:

Control system type	Fuse [A FF]	Fuse [mm]	Fuse holder	Attachment
JT 14/...	16	14x51	Type1	DIN-rail
JT 26/...	32	14x51	Type1	DIN-rail
JT 45/...	63	22x57	Type2	DIN-rail
JT 70/...	80	R 1/1/4	Type3	Screws



With long periods of operation the temperature of the fuse may exceed 100°C. Before replacing the fuse allow it to cool for about 15 minutes.



Switch off the mains voltage before replacing the fuse.

N.B.: The fuse and fuse holder contained in the scope of supply must be connected to the mains cable at terminal X1.1.

The super-quick acting fuse protects the thyristor in the event of a short-circuit. Only the same type may be used when the fuse is replaced.

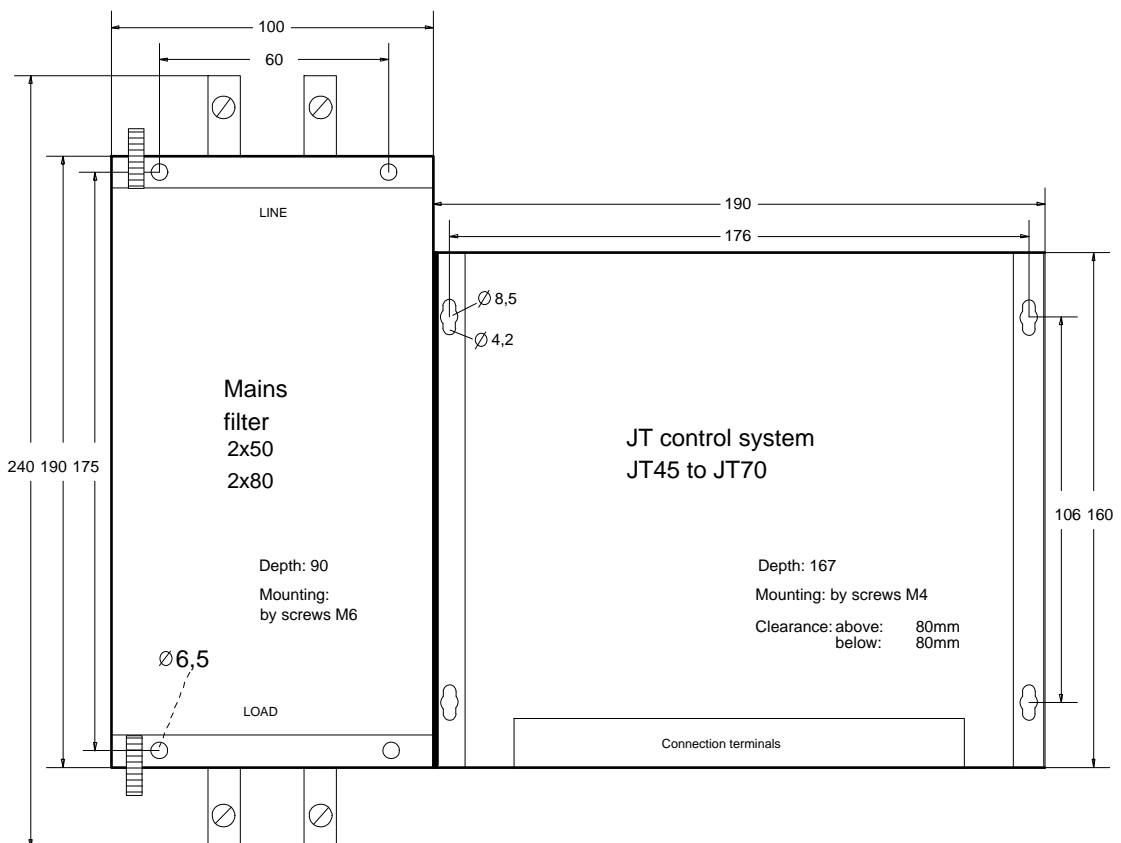
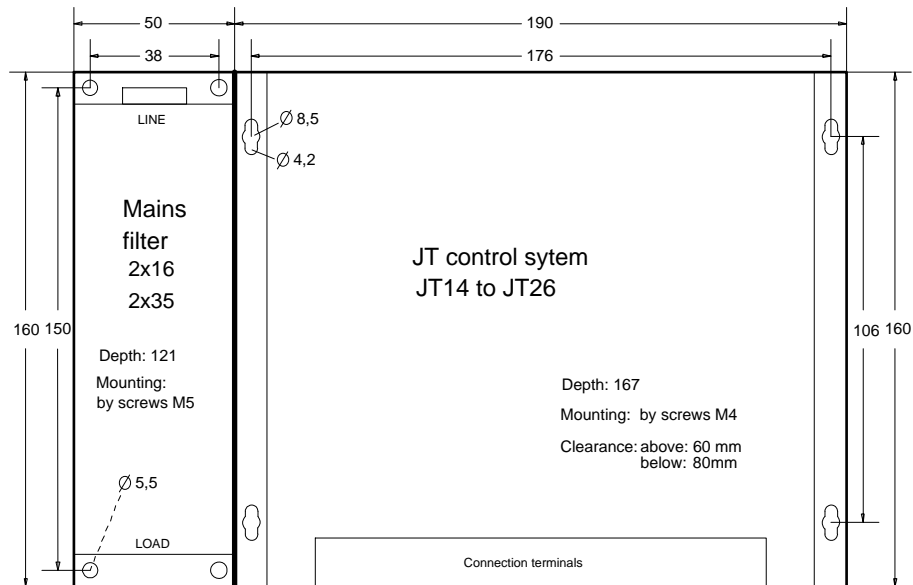
Fuses for cable and drive protection are not our scope of supply. Dimensioning acc. to nominal current of drive.



### 13.5 DIMENSIONS

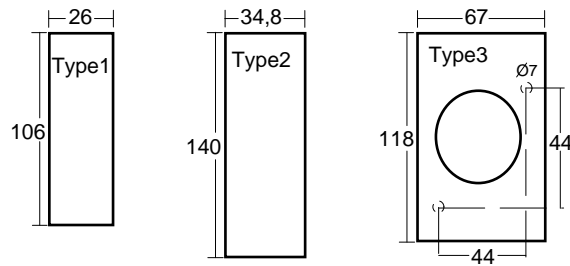
#### JT control system / Mains filter:

(Mains filter only within the scope of EC directive 89/336/EEC for EMC)



all dimensions in mm

Fuse holder types 1 to 3:



For JT14 / JT26

Mounting:  
DIN rail

Height incl.  
swivell lever:  
98mm

For JT45

Mounting:  
DIN rail

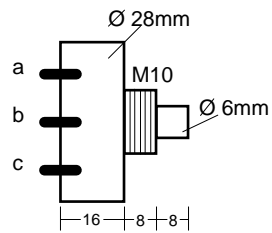
Height incl.  
swivell lever:  
112mm

For JT70

Height incl.  
screw cap:  
95mm

All dimensions in mm

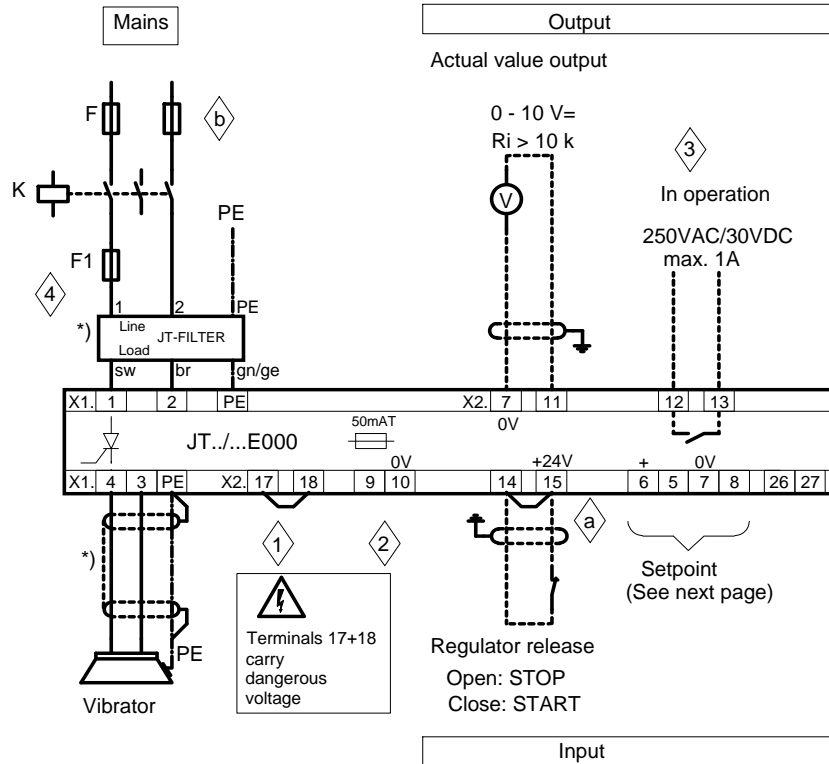
5 K $\Omega$  potentiometer with scale and rotary knob:



Scale : 64 x 64 mm  
Centre hole : Ø 11 mm

Rotaty knob : Ø 36 mm  
Height : 20 mm

**13.6 CONNECTION DIAGRAM**



\*) Required measures according to EC-directive 89/336/EEC for EMC

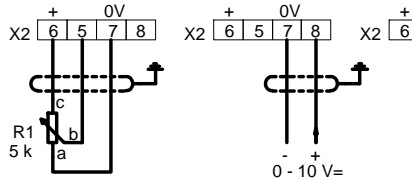
N.B.:

- ① Remove link 17-18 only if:
  - a) combined with separating diodes type "F"
  - b) stroke sensor JSEN1 resp. G5/Y or G6/Y is connected
- ② Stroke sensor connection only with JT...E000-..Y.. : see next page
- ③ External contactors must be fitted with RC- or VDR protective circuits resp. free running diodes
- ④ Fuse F1 (super-quick-acting), fuse holder and JT-FILTER will be partially delivered
- ⑤ Terminal X2.15 (24V) is only to be used for connecting the regulator release contact and the sensor JSEN1
- ⑥ Back-up fuse F: by customer; adapted to nominal current of drive

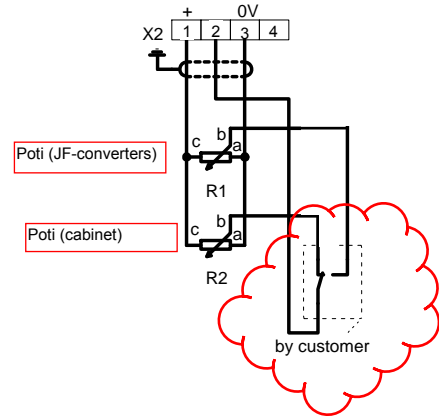
Setpoint connection

Potentiometer

External signal



Mode:  
R1 - Poti (JF-converters)  
R2 - Poti (cabinet)



N.B.:

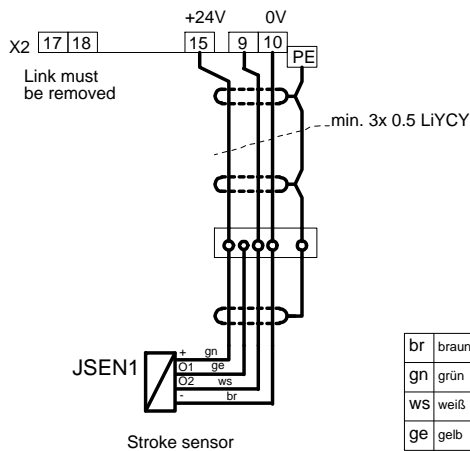
- ◇ 5 POTI R1: Partially delivered with scale and kn  
Cable length max. 150m
- ◇ 6 POTI R2: order separately

Stroke sensor connection (only with JT../...E000-..Y..)

Type:

JSEN1

see also: Connection diagram of JSEN1



br	braun	brown	brun
gn	grün	green	vert
ws	weiß	white	blanc
ge	gelb	yellow	jaune

Type:

G5/Y , G6/Y

