



**33 43303B00**

**Phase -shift control device**  
for installation on mounting rails

This phase-shift control device is designed for ohmic/inductive loads supplied with variable operating voltage.

It is highly recommended for use in connection with Kendrion vibrators series 20.., 21.., 24.. and 25.. and further with types WS3.. to WS9...

This phase-shift control device is suitable for the control of loads with variable AC or DC voltage by means of an integrated half-wave rectifier. The controlled output voltage can be adjusted either with the internal potentiometer (which can be controlled from the outside) or with an external potentiometer. To provide an optimal potentiometer controlling it is possible to adjust the control region for the vibrators with an integrated trim potentiometer. The potential-separated enable input allows the output voltage to be switched on at 24 VDC.

This input is suitable as emergency switch. Overload protection is provided by the integrated fine-wire fuse. The phase-shift control devices are also suitable for electric units connected to 110 / 230 V (50/60Hz) AC mains voltage systems with reduced operating voltage and can be employed to adjust units with lower operating voltage to these voltage systems. The phase-shift control device is integrated into a compact plastic enclosure and thus suitable for installation on top hat rails in switch cabinets.

### Technical Data

Input voltage $V_I$ :	100 – 240 VAC
Frequency:	40 – 60 Hz
Adjustable output voltage (at 50 Hz):	
$V_{OAC}$ (terminals N...AC):	0.2 – 0.95 x $V_I$
$V_{ODC}$ (terminals N...L-):	0.2 – 0.42 x $V_I$
Output current max.:	2 AAC / 2 ADC
Protection:	fine-wire fuse 5x20 T2.5E as per DIN 41571
External potentiometer:	500 kOhm / 0.5 W linear
Enable input voltage	24 VDC $\pm$ 10%
max. input current	15 mA
potential separation protection	up to 2000 V against reverse polarity
Ambient temperature range:	0...50°C
Connection:	8-pole screw terminals
Cross-section:	max. 1.5 mm <sup>2</sup> fine-wire
Installation:	on 35 mm mounting rail as per EN 50022

DC Output	jumper S3 open
Enable input	jumper S2 open
External potentiometer	jumper S1 open
Standard setting	all jumpers closed

**Protection:**  
as per EN 60529: IP00

**Subject to design modifications without notice.**

**Please observe ordering data!**

### CE

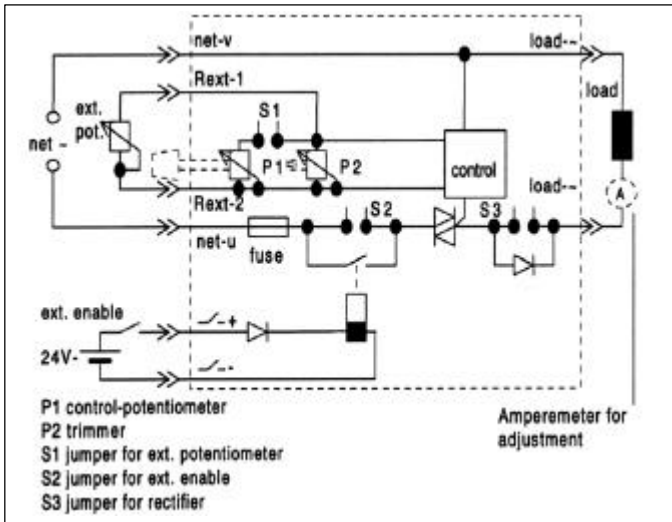
These devices meet the requirements of the EMC Directive 89/336/EEC. Compliance with the following standards is confirmed: EN 55011 (VDE 0875, Part 11, 1992) Group 1, Class A  
Disturbance voltage  
Group 1, Class B  
Disturbance radiation

EN61000-4-3,1995  
Test severity level 3  
EN61000-4-4,1995  
Test severity level 2  
Test severity level 3:  
Minor temporary voltage increases may occur without causing any malfunctions.  
EN61000-4-5,1995  
Test severity level 3

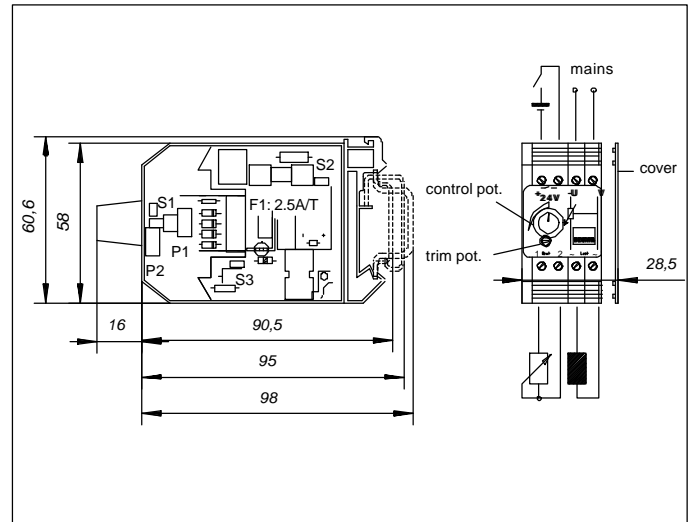
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**Order example** Phase-shift control device  
33 43303B00

## Block diagram



## Dimensions (mm)



## Operating Instructions

## General hints

The device is shipped with open cover and 3 jumpers.

## Jumper setting

**S1:**  
 operation with external potentiometer      open  
 operation with internal potentiometer      closed

**S2:**  
 operation with external enable input      open  
 operation without external enable input      closed

**S3:**  
 operation with internal half-wave rectifier      open  
 operation without rectifier      closed

## Mounting and connection

After setting the jumpers the cover has to be closed.  
 The device should be mounted on a 35 mm mounting rail for switch cabinets with the universal mounting clip.  
 The supply terminals "U" and "V" must be connected to the AC-supply (110 ... 230 VAC 50/60 Hz).  
 The load must be connected with the load terminals "~".  
 If operation with external potentiometer is provided, connect the external potentiometer to terminals "R<sub>ext-1</sub>" and "R<sub>ext-2</sub>".  
 For external enable connect the external control-signal (24VDC) to "Switch+" and "Switch-".  
 No enabling is possible if an reverse polarity failure occurs. The device is protected against damage.

## Operation and adjustment

Take a screw-driver (2 mm) and an ammeter (2AAC / 2ADC). An ammeter isn't necessary if the adjustment is possible with a scale on a vibrator or in another way.  
 The ammeter has to be connected as shown in the block diagram.  
 Before first operation the control potentiometer and the trimmer

should be turned to the left end (minimum).

After turning power on and if used enabling the device turn the trimmer to the right until the current will begin to increase or the vibrators have the wished minimal wave-amplitude.

**Attention!** The current can be lower if the load has normal operating temperature. To prevent later variation adjust the vibrators at operating temperature.  
 Then check if the expected maximal current flows (max. 2A) or the vibrators have their maximal amplitude by turning the control potentiometer to the right end.

## Troubleshooting

- No current flows:**  
 Check the integrated fuse (2.5A/T) by opening the cover.  
**Attention!** Disconnect the power supply before.  
 Check the correct connection of signals and power supply.  
 Check the polarity and function of the control signal.  
 Check the jumper setting.  
 If vibrators with internal diode are used, then close jumper S3.  
 Check the power supply, the load and the the position of the control potentiometer and the trimmer.
- The maximal current is to low / the maximal amplitude of vibrators will not be obtained.**  
 Check the correct adjustment.  
 Check the nominal voltage of the load. It should be lower or equal to the power supply.
- The maximal current is to high. The fuse breaks down if potentiometer is turned to maximum.**  
 Is the nominal load power higher then 460 VA?  
 It is allowed to switch more than one load in parallel, but the total power has to be lower than 460 VA.  
 Look for a short cut.