

## TECHNICAL REFERENCE-MANUAL

### ANALOG SIGNAL SEPARATOR

#### Type DKS-25



## 1. INTENDED USE

The **DKS-25** Separator of analog signals is applicable in comprehensive industrial automation systems, e.g. in computer systems, where system components must be galvanically separated from measuring circuits. The Separator ensures galvanic separation between input analog signal of **0-20 mA, 0-5 mA, 4-20 mA, 0-10 V** (depending on its version) and the secondary signal ranging **4-20 mA**. The Unit is supplied from the output circuit of **4-20 mA**.

## 2. COMPLETE DELIVERY DATA

The Unit comes with:

- Technical Reference Manual, the number of copies being as ordered,
- Guarantee Card.

## 3. CONSTRUCTION

The DKS-25 Separator is mounted in a standard housing made by PHOENIX CONTACT Company intended to installation on standard T-35 bars of terminal strips. It occupies about 22.5mm of strip length. On the front plate there are two groups of terminals, each with 3 terminals, divided into input and output terminals. Electronic components are mounted on a PC board inside the housing. The front panel of Separator bears a label including description of the version and providing an area to be filled with tag data.

## 4. TECHNICAL DATA

4.1. Number of separated channels	1
4.2. Input parameters	
- ranges of input signals	0-5mA; 0-20mA; 4-20mA; 0-10 V or as ordered (as agreed upon)
- voltage drop in input circuit – for current signals	1 V
- input resistance – for voltage signal	10 kΩ
4.3. Output parameters	
- output signal range	4 - 20 mA
- voltage range at output terminals	12V - 36V
4.4. Transfer band (3 dB)	0 - 20 kHz
4.5. Conversion errors	
- basic error (accuracy class)	0.1%, 0.16% as ordered
- additional errors (respectively)	0.05%, 0.1%
- - from ambient temperature	0.05%/10°C
4.6. Separation between input/output circuits	
- insulation resistance	> 20 MΩ
- insulation level	2000 V RMS
4.7. Operating conditions	
- ambient temperature	0 - 70°C or -20 - 70°C as ordered
- relative humidity	< 90 % without condensation
- sinusoidal vibrations	10 - 55 Hz /0.15 mm
- foreign magnetic field	0 - 400 A/m
- noise emission	level N
4.8. Max. admissible cross-section of leads	1.5 mm <sup>2</sup>
4.9. Dimensions	22.5 x 82 x 90

## 5. OPERATING PRINCIPLE

Signal transfer from primary to secondary side is done via a "line optoisolator", and the transfer factor is looped a feedback with additional receiving diode. Power supply for Separator is taken from two-wire output signal. It is passed to the primary side via a transformer serviced by a converter. The Separator detects damage on its primary side (input signal below 4 mA).

## 6. INSTALLATION AND OPERATION

The analog separator is installed on buses of standard T-35 terminal strips. The buses shall be located in cabinets or field boxes, unless they are placed in closed rooms with environment as specified in technical data. Resistance receivers should not exceed the values for which the maximum output signal and minimum supply voltage cause that the voltage across output terminals drops below minimum (12 V). The maximum voltage in input circuit must not exceed 36 V.

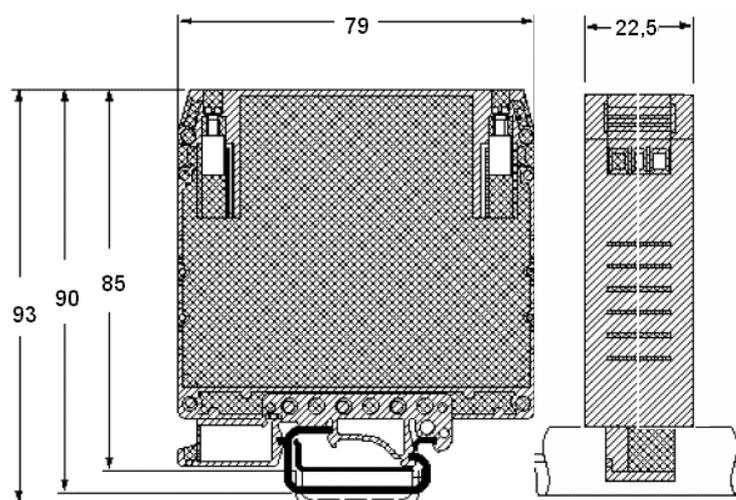
If the input signal (non-zero) may, during regular operation, drop below the lower limit of the range, such signal shall be connected to the input terminal which introduces a diode so as to avoid alarm of exceeding the range for the input signal receiver.

## 7. TABLE OF VERSIONS

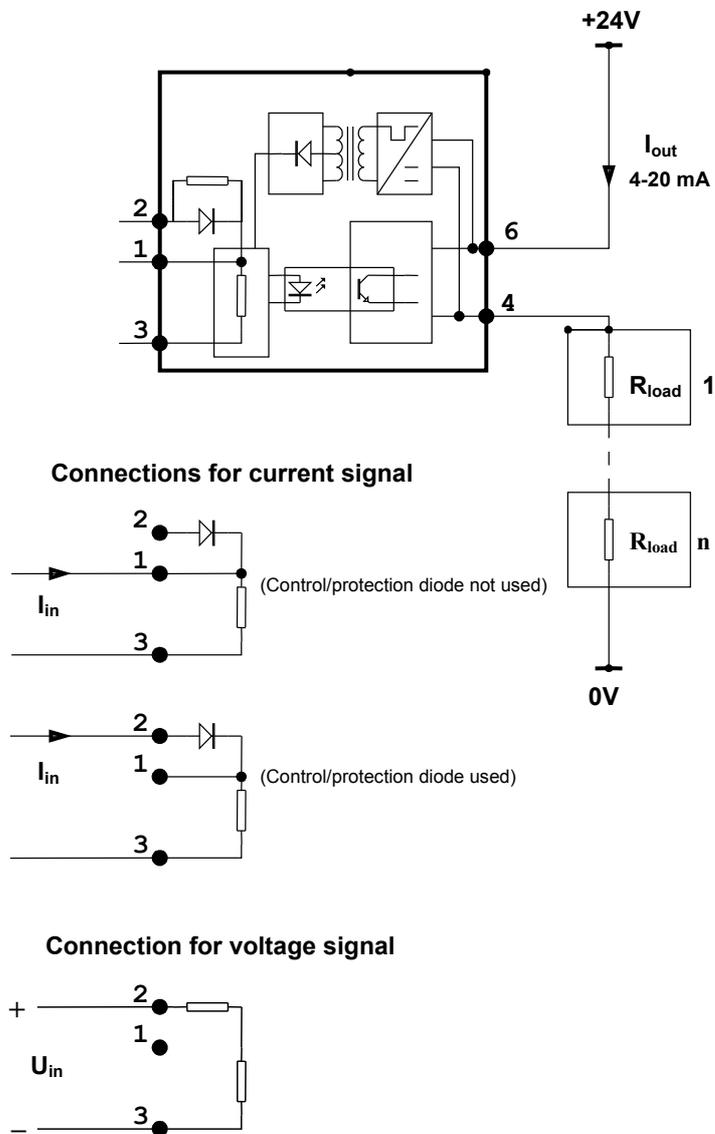
	<b>DKS-25</b>	<b>. X</b>	<b>. X</b>	<b>. X</b>
<b>Conversion class:</b>				
	<b>0.1%</b>	<b>1</b>		
	<b>0.16%</b>	<b>2</b>		
<b>Input signal:</b>				
	<b>0 - 5 mA</b>		<b>1</b>	
	<b>0 - 20 mA</b>		<b>2</b>	
	<b>0 - 10 V</b>		<b>3</b>	
	<b>4 - 20 mA</b>		<b>4</b>	
	<b>others</b>		<b>5</b>	
<b>Range of operating temperature:</b>				
	<b>0 ÷ 70°C</b>			<b>1</b>
	<b>-20 ÷ 70°C</b>			<b>2</b>

### EXAMPLE OF ORDER

Separator of analog signals 0 - 10V; conversion class 0.1% and operating temperature 0 - 70°C:  
**DKS-25.1.3.1.**



**Fig.1. Dimensional drawing**



**Fig.2. Block diagram of DKS – 25 Separator**