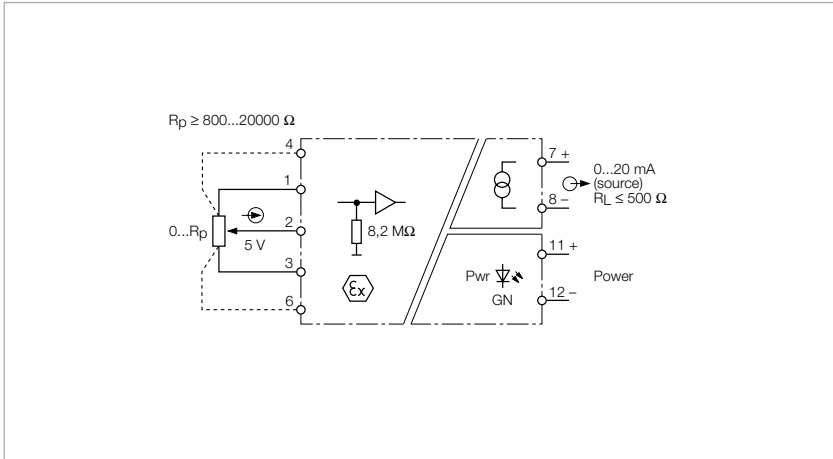


## Potentiometer amplifier, 1-channel



### Features

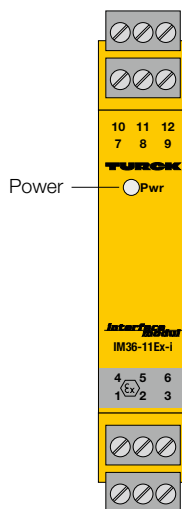
- ATEX, TR CU
- Transmission of potentiometer signals from the Ex area
- Potentiometer, nominal resistance: 0.8...20 kΩ
- Output circuit: 0...20 mA
- Complete galvanic isolation

The 1-channel potentiometer amplifier IM36-11EX-I/24VDC is designed to transmit signals from 3 or 5-wire potentiometers galvanically isolated from the Ex area to the non-Ex area and to convert them into normalized 0...20 mA analog signals. The resistance value of the wiper contact is collected in a range between

0 Ω and the nominal resistance value (end value) of the potentiometer and converted into a linear value.

A potentiometer is defined by its nominal resistance. Any potentiometer can be connected, provided the nominal resistance is 800...200000 Ω. Common poten-

tiometers featuring a nominal resistance of 1 kΩ or 10 kΩ can thus be used. The admissible line resistance is maximally 50 Ω with a potentiometer resistance of 800 Ω.



# Technical data

<b>Type</b>	IM36-11EX-I/24VDC
Ident no.	7509525

## Power supply

Nominal voltage	24 VDC
Operating voltage range	19...29 VDC
Power consumption	≤ 2 W

## Inputs

Input circuits	potentiometer
Cable resistance	≤ 50 Ω
Voltage on resistor	5 VDC
Nominal resistance	0.8...20 kΩ

## Outputs

Output current	0...20 mA
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## Response characteristic

Measuring accuracy	≤ 0.3 % of full scale
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## Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 99 ATEX 1405
Device designation	Ⓔ II (1) G [EEx ia] IIC
Max. values:	Terminal connection: 1...6
Max. output voltage $U_o$	≤ 13.8 V
Max. output current $I_o$	≤ 35 mA
Max. output power $P_o$	≤ 121 mW
Rated voltage	250 V
Characteristic	linear

## External inductance/capacitance $L_o/C_o$

	EEx ia IIC	EEx ia IIB
$L_o$ [mH]	20.0	100.0
$C_o$ [nF]	760	4900

## Indication

Operational readiness	green
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## Environmental Conditions

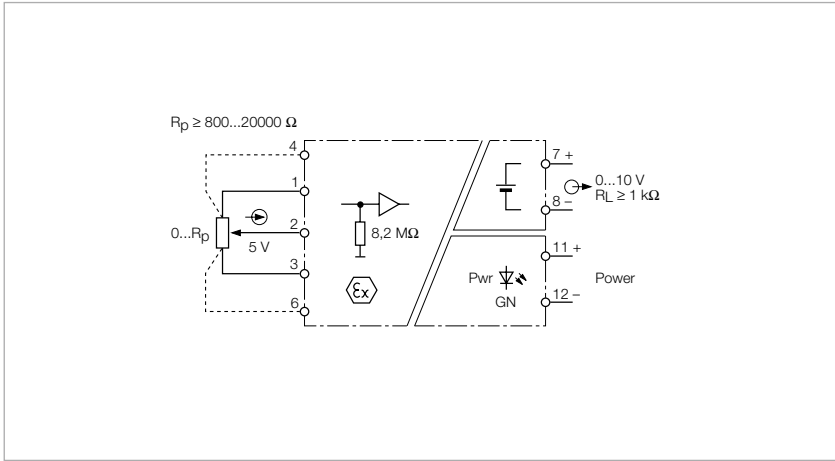
Ambient temperature	-25...+60 °C
Storage temperature	-40...+80 °C
Test voltage	2.5 kV

## Mechanical data

Tightening torque	0.5 Nm
Electrical connection	4 x 3-pin removable terminal blocks, reverse polarity protected, screw connection
Terminal cross-section	1 x 2.5 mm <sup>2</sup> / 2 x 1.5 mm <sup>2</sup>
Housing material	Polycarbonate/ABS
Mounting instruction	for DIN rail / panel
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	18 x 104 x 110 mm

<b>Approval   Certification</b>	ATEX, TR CU
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# Potentiometer amplifier, 1-channel



## Features

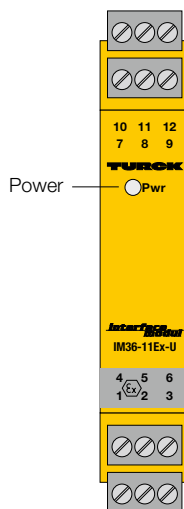
- ATEX, TR CU
- Transmission of potentiometer signals from the Ex area
- Potentiometer, nominal resistance: 0.8...20 kΩ
- Output circuit: 0...10 V
- Complete galvanic isolation

The 1-channel potentiometer amplifier IM36-11EX-U/24VDC is designed to transmit signals from 3 or 5-wire potentiometers galvanically isolated from the Ex area to the non-Ex area and to convert them into normalized 0...10 V analog signals. The resistance value of the wiper contact is collected in a range between

0 Ω and the nominal resistance value (end value) of the potentiometer and converted into a linear value.

A potentiometer is defined by its nominal resistance. Any potentiometer can be connected, provided the nominal resistance is 800...200000 Ω. Common poten-

tiometers featuring a nominal resistance of 1 kΩ or 10 kΩ can thus be used. The admissible line resistance is maximally 50 Ω with a potentiometer resistance of 800 Ω.



# Technical data

<b>Type</b>	IM36-11EX-U/24VDC
Ident no.	7509526

## Power supply

Nominal voltage	24 VDC
Operating voltage range	19...29 VDC
Power consumption	≤ 2 W

## Inputs

Input circuits	potentiometer
Cable resistance	≤ 50 Ω
Voltage on resistor	5 VDC
Nominal resistance	0.8...20 kΩ

## Outputs

Output voltage	0...10 V
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## Response characteristic

Measuring accuracy	≤ 0.3 % of full scale
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## Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 99 ATEX 1405
Device designation	Ⓔ II (1) G [EEx ia] IIC
Max. values:	Terminal connection: 1...6
Max. output voltage $U_o$	≤ 13.8 V
Max. output current $I_o$	≤ 35 mA
Max. output power $P_o$	≤ 121 mW
Rated voltage	250 V
Characteristic	linear

## External inductance/capacitance $L_o/C_o$

	EEx ia IIC	EEx ia IIB
$L_o$ [mH]	20.0	100.0
$C_o$ [nF]	760	4900

## Indication

Operational readiness	green
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## Environmental Conditions

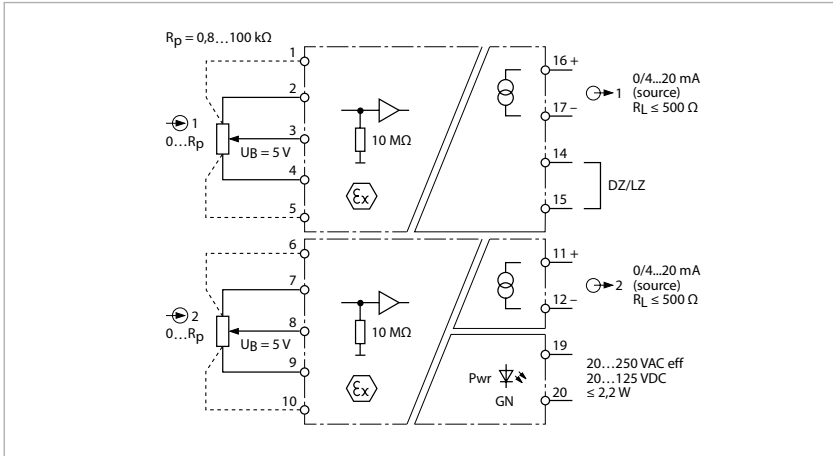
Ambient temperature	-25...+60 °C
Storage temperature	-40...+80 °C
Test voltage	2.5 kV

## Mechanical data

Tightening torque	0.5 Nm
Electrical connection	4 x 3-pin removable terminal blocks, reverse polarity protected, screw connection
Terminal cross-section	1 x 2.5 mm <sup>2</sup> / 2 x 1.5 mm <sup>2</sup>
Housing material	Polycarbonate/ABS
Mounting instruction	for DIN rail / panel
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	18 x 104 x 110 mm

<b>Approval   Certification</b>	ATEX, TR CU
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# Potentiometer amplifier, 2-channel



## Features

- ATEX, IECEx, TR CU
- Installation in zone 2
- Transmission of potentiometer signals from the Ex area
- Potentiometer, nominal resistance: 0.8...100 kΩ
- Output circuit: 0/4...20 mA
- Complete galvanic isolation

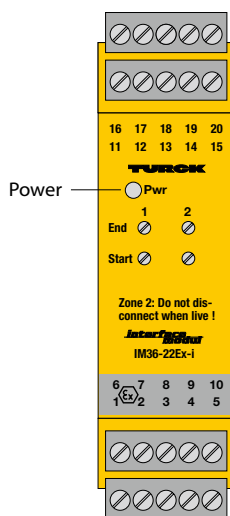
The 2-channel potentiometer amplifier IM36-22EX-U is designed to transmit signals from 3 or 5-wire potentiometers galvanically isolated from the Ex area to the non-Ex area and to convert them into normalized 0...20 mA analog signals. Live-zero operation is activated for both channels through bridging terminals 14 and 15. The resistance value of the wiper contact is collected in a range between 0 Ω and the nominal resistance value

(end value) of the potentiometer and converted into a linear value.

A potentiometer is defined by its nominal resistance. Any potentiometer can be connected, provided the nominal resistance is 800...100000 Ω. Common potentiometers featuring a nominal resistance of 1 kΩ or 10 kΩ can thus be used. The admissible line resistance is maximally

50 Ω with a potentiometer resistance of 800 Ω.

The incremental potentiometer's start and end point can be adjusted separately for each channel. This is necessary to protect the incremental potentiometer from damage which can be caused by critical rotation angles smaller than 5% and greater than 95% of the absolute rotational torque.



# Technical data

<b>Type</b>	IM36-22EX-I
Ident no.	7509528

<b>Power supply</b>	
Nominal voltage	Universal voltage supply unit
Operating voltage range	20...125 VDC
Operating voltage range	20...250 VAC
Frequency	40...70 Hz
Power consumption	≤ 2.2 W

<b>Inputs</b>	
Input circuits	potentiometer
Cable resistance	≤ 50 Ω
Voltage on resistor	5 VDC
Nominal resistance	0.8...100 kΩ

<b>Outputs</b>	
Output current	0/4...20 mA

<b>Response characteristic</b>	
Rise time (10-90%)	≤ 35 ms
Dropout time (90...10%)	≤ 40 ms

<b>Approvals and declarations</b>	
Ex approval acc. to conformity certificate	TÜV 12 ATEX 093477
Device designation	⊕ II (1) G, II (1) D [Ex ia Ga] IIC; [Ex ia Da] IIIC
Max. values:	Terminal connection: 1...5 / 6...10
Max. output voltage $U_o$	≤ 14.1 V
Max. output current $I_o$	≤ 40.6 mA
Max. output power $P_o$	≤ 143 mW
Characteristic	linear
Internal inductance/capacitance $L_i/C_i$	$L_i = 87 \mu\text{H}; C_i = 15 \text{nF}$

<b>External inductance/capacitance <math>L_o/C_o</math></b>						
Ex ia	IIC			IIB		
$L_o$ [mH]	1	5	10	1	5	10
$C_o$ [nF]	425	285	235	2400	1700	1500

Ex approval acc. to conformity certificate	TÜV 12 ATEX 093479 X
Application area	II 3 G
Protection type	Ex nA nC [ic Gc] IIC T4 Gc
Max. values:	Terminal connection: 1...5 / 6...10
Max. output voltage $U_o$	≤ 14.1 V
Max. output current $I_o$	≤ 40.6 mA
Max. output power $P_o$	≤ 143 mW
Characteristic	linear
Internal inductance/capacitance $L_i/C_i$	$L_i = 87 \mu\text{H}; C_i = 15 \text{nF}$

<b>External inductance/capacitance <math>L_o/C_o</math></b>						
Ex ic	IIC			IIB		
$L_o$ [mH]	1	5	10	1	5	10
$C_o$ [nF]	735	515	445	4300	3000	2700

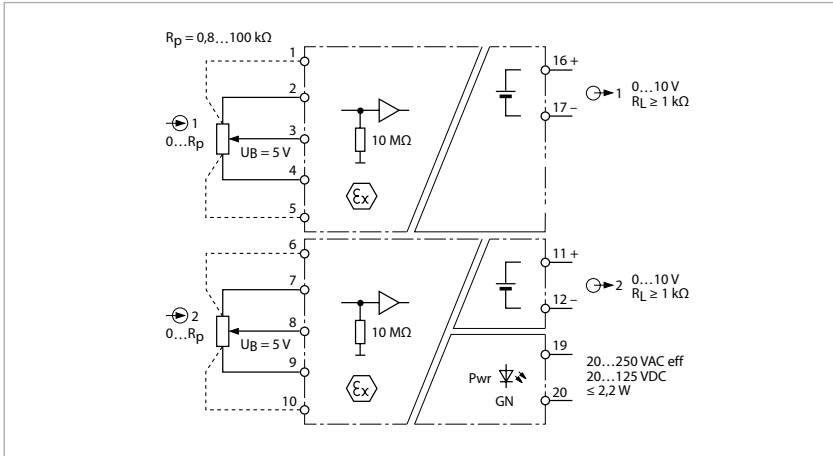
<b>Indication</b>	
Operational readiness	green

<b>Environmental Conditions</b>	
Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Test voltage	2.5 kV

<b>Mechanical data</b>	
Tightening torque	0.5 Nm
Electrical connection	4 x 5-pin removable terminal blocks, reverse polarity protected, screw connection
Terminal cross-section	1 x 2.5 mm <sup>2</sup> / 2 x 1.5 mm <sup>2</sup>
Housing material	Polycarbonate/ABS
Mounting instruction	for DIN rail / panel
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	27 x 104 x 110 mm

<b>Approval   Certification</b>	ATEX, IECEx, TR CU
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# Potentiometer amplifier, 2-channel



## Features

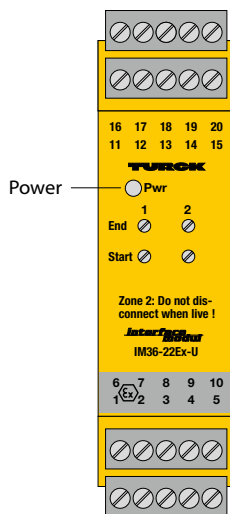
- ATEX, IECEx, TR CU
- Installation in zone 2
- Transmission of potentiometer signals from the Ex area
- Potentiometer, nominal resistance: 0.8...100 kΩ
- Output circuit: 0...10 V
- Complete galvanic isolation

The 2-channel potentiometer amplifier IM36-22EX-U is designed to transmit signals from 3 or 5-wire potentiometers galvanically isolated from the Ex area to the non-Ex area and to convert them into normalized 0...10 V analog signals. The resistance value of the wiper contact is collected in a range between 0 Ω and the nominal resistance value (end value) of the potentiometer and converted into a linear value.

A potentiometer is defined by its nominal resistance. Any potentiometer can be connected, provided the nominal resistance is 800...100000 Ω. Common potentiometers featuring a nominal resistance of 1 kΩ or 10 kΩ can thus be used. The admissible line resistance is maximally 50 Ω with a potentiometer resistance of 800 Ω.

The incremental potentiometer's start and end point can be adjusted separately

for each channel. This is necessary to protect the incremental potentiometer from damage which can be caused by critical rotation angles smaller than 5 % and greater than 95 % of the absolute rotational torque.



# Technical data

<b>Type</b>	IM36-22EX-U
Ident no.	7509530

<b>Power supply</b>	
Nominal voltage	Universal voltage supply unit
Operating voltage range	20...125 VDC
Operating voltage range	20...250 VAC
Frequency	40...70 Hz
Power consumption	≤ 2.2 W

<b>Inputs</b>	
Input circuits	potentiometer
Cable resistance	≤ 50 Ω
Voltage on resistor	5 VDC
Nominal resistance	0.8...100 kΩ

<b>Outputs</b>	
Output voltage	0...10 V

<b>Response characteristic</b>	
Rise time (10-90%)	≤ 35 ms
Dropout time (90...10%)	≤ 40 ms

<b>Approvals and declarations</b>	
Ex approval acc. to conformity certificate	TÜV 12 ATEX 093477
Device designation	⊕ II (1) G, II (1) D [Ex ia Ga] IIC; [Ex ia Da] IIIC
Max. values:	Terminal connection: 1...5 / 6...10
Max. output voltage $U_o$	≤ 14.1 V
Max. output current $I_o$	≤ 40.6 mA
Max. output power $P_o$	≤ 143 mW
Characteristic	linear
Internal inductance/capacitance $L_i/C_i$	$L_i = 87 \mu\text{H}; C_i = 15 \text{nF}$

<b>External inductance/capacitance <math>L_o/C_o</math></b>						
Ex ia	IIC			IIB		
$L_o$ [mH]	1	5	10	1	5	10
$C_o$ [nF]	425	285	235	2400	1700	1500

Ex approval acc. to conformity certificate	TÜV 12 ATEX 093479 X
Application area	II 3 G
Protection type	Ex nA nC [ic Gc] IIC T4 Gc
Max. values:	Terminal connection: 1...5 / 6...10
Max. output voltage $U_o$	≤ 14.1 V
Max. output current $I_o$	≤ 40.6 mA
Max. output power $P_o$	≤ 143 mW
Characteristic	linear
Internal inductance/capacitance $L_i/C_i$	$L_i = 87 \mu\text{H}; C_i = 15 \text{nF}$

<b>External inductance/capacitance <math>L_o/C_o</math></b>						
Ex ic	IIC			IIB		
$L_o$ [mH]	1	5	10	1	5	10
$C_o$ [nF]	735	515	445	4300	3000	2700

<b>Indication</b>	
Operational readiness	green

<b>Environmental Conditions</b>	
Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Test voltage	2.5 kV

<b>Mechanical data</b>	
Tightening torque	0.5 Nm
Electrical connection	4 x 5-pin removable terminal blocks, reverse polarity protected, screw connection
Terminal cross-section	1 x 2.5 mm <sup>2</sup> / 2 x 1.5 mm <sup>2</sup>
Housing material	Polycarbonate/ABS
Mounting instruction	for DIN rail / panel
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	27 x 104 x 110 mm

<b>Approval   Certification</b>	ATEX, IECEx, TR CU
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