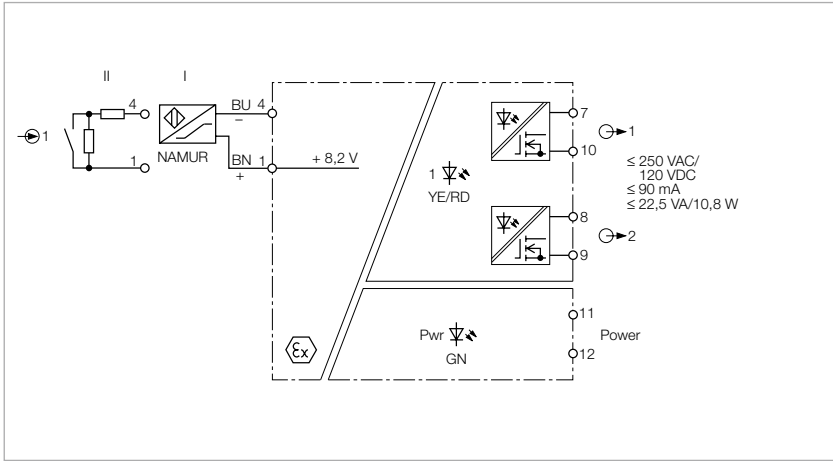


Isolating switching amplifier, 1-channel



Features

- ATEX, IECEx, UL, cFM_{US}, CSA, TR CU, NEPSI, KOSHA, TIIS, CCOE
- Installation in zone 2
- 2 transistor outputs (MOSFET)
- Output mode adjustable (NO/NC mode)
- Input circuits monitored for wire-break and short-circuit
- Complete galvanic isolation

The 1-channel isolating switching amplifier IM1-12EX-MT is equipped with an intrinsically safe input circuit.

Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact transmitters can be connected to the device.

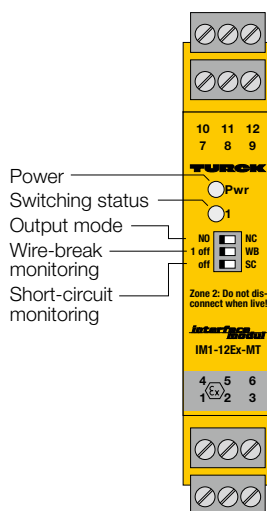
The output circuits feature two potential-free and parallel controlled MOSFET transistors for switching voltages of up to

250 VAC at a maximum frequency of 1 kHz.

You can set each channel separately to work/closed current, i.e. NO/NC mode and duplicate signals via 3 switches on the front. The switching state of channel 1 is thereby transmitted to the outputs 1 and 2. You can also set the output mode separately for each channel.

You can also set the output mode separately for each channel.

The Pwr LED lights green to indicate operational readiness. The 2-color LED 1 lights yellow to indicate the switching status of the associated output. In the event of an input circuit error, the associated 2-color LED turns red, provided the input circuit monitoring function is activated. Thereupon the MOSFET outputs are blocked.



Technical data

Type	IM1-12EX-MT
Ident no.	7541228

Power supply

Nominal voltage	Universal voltage supply unit
Operating voltage range	20...125 VDC
Operating voltage range	20...250 VAC
Frequency	40...70 Hz
Power consumption	≤ 3 W

Inputs

No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold	1.55 mA
Switch-off threshold	1.75 mA
Short-circuit threshold	≥ 6 mA
Wire breakage threshold	≤ 0.1 mA

Outputs

Output circuits (digital)	2 x MOSFET (potential-free, short-circuit proof)
Switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 90 mA
Switching frequency	≤ 1000 Hz

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 04 ATEX 2553
Device designation	⊕ II (1) G, II (1) D [Ex ia Ga] IIC; [Ex ia Da] IIIC
Max. values:	Terminal connection: 1+4
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 65 \mu\text{H}$, C_i negligibly small

External inductance/capacitance L_o/C_o

Ex ia	IIC			IIB		
L_o [mH]	1	5	10	2	10	20
C_o [μF]	1.1	0.83	0.74	5.2	3.8	3.4

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552968 X
Application area	II 3 G
Protection type	Ex nA [ic Gc] IIC/IIB T4 Gc
Max. values:	Terminal connection: 1+4
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 65 \mu\text{H}$, C_i negligibly small

External inductance/capacitance L_o/C_o

Ex ic	IIC			IIB		
L_o [mH]	1	5	10	1	5	10
C_o [μF]	1.9	1.4	1.2	11	7.5	6.6

Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Relative humidity	≤ 95 %
Test voltage	2.5 kV

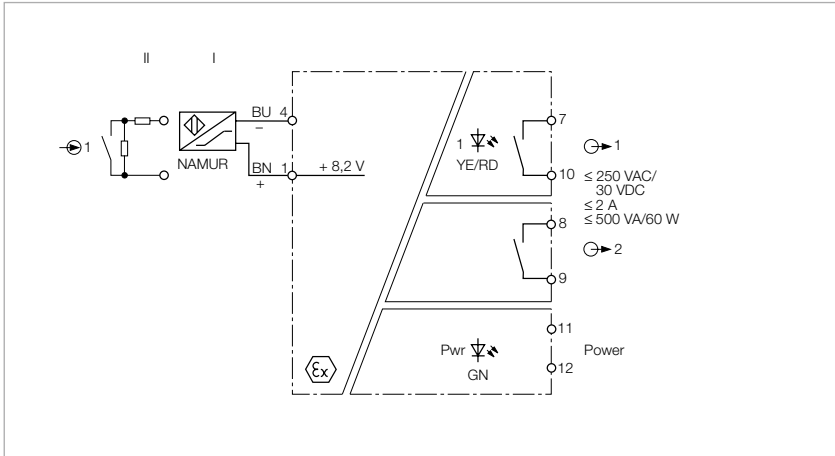
Mechanical data

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 ² / 2 x 1.5 mm ²
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

Approval | Certification

ATEX, IECEx, UL, cFM_{US}, CSA, TR CU, NEPSI, KOSHA, TIIS, CCOE

Isolating switching amplifier, 1-channel



Features

- ATEX, IECEx, UL, cFM_{US}, CSA, TR CU, NEPSI, KOSHA, TIIS, CCOE
- Installation in zone 2
- 2 relay outputs (NO)
- Output mode adjustable (NO/NC mode)
- Input circuits monitored for wire-break and short-circuit
- Complete galvanic isolation

The 1-channel isolating switching amplifier IM1-12EX-R is equipped with an intrinsically safe input circuit.

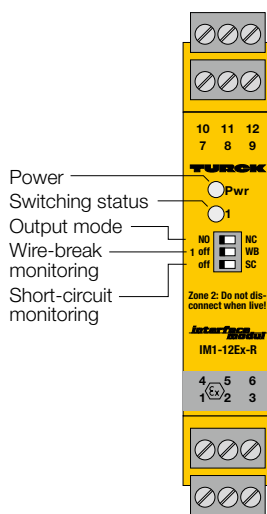
Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact transmitters can be connected to the device.

The output circuit features two relays, each with NO contact.

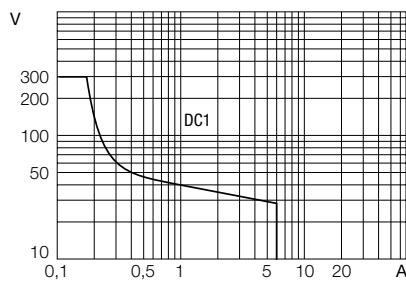
You can set each channel separately to work/closed current, i.e. NO/NC mode and duplicate signals via 3 switches on the front. The switching state of channel 1 is thereby transmitted to the outputs 1 and 2. You can also set the output mode separately for each channel.

You can also set the output mode separately for each channel.

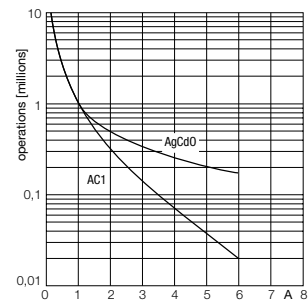
The Pwr LED lights green to indicate operational readiness. The 2-color LED 1 lights yellow to indicate the switching status of the associated output. In the event of an input circuit error, the associated 2-color LED turns red, provided the input circuit monitoring function is activated. Thereupon the output relays drop out.



Output relay – Load curve



Output relay – Electrical lifetime



Technical data

Type	IM1-12EX-R
Ident no.	7541226

Power supply

Nominal voltage	Universal voltage supply unit
Operating voltage range	20...125 VDC
Operating voltage range	20...250 VAC
Frequency	40...70 Hz
Power consumption	≤ 3 W

Inputs

No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold	1.55 mA
Switch-off threshold	1.75 mA
Short-circuit threshold	≥ 6 mA
Wire breakage threshold	≤ 0.1 mA

Outputs

Output circuits (digital)	2 x relays (NO)
Switching frequency	≤ 10 Hz
Relay switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 500 VA/60 W
Contact quality	AgNi, 3μ Au

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 04 ATEX 2553
Device designation	Ⓔ II (1) G, II (1) D [Ex ia Ga] IIC; [Ex ia Da] IIIC
Max. values:	Terminal connection: 1+4
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 65 \mu\text{H}$, C_i negligibly small

External inductance/capacitance L_o/C_o

Ex ia	IIC			IIB		
L_o [mH]	1	5	10	2	10	20
C_o [μF]	1.1	0.83	0.74	5.2	3.8	3.4

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552968 X
Application area	II 3 G
Protection type	Ex nA nC [ic Gc] IIC/IIB T4 Gc
Max. values:	Terminal connection: 1+4
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 65 \mu\text{H}$, C_i negligibly small

External inductance/capacitance L_o/C_o

Ex ic	IIC			IIB		
L_o [mH]	1	5	10	1	5	10
C_o [μF]	1.9	1.4	1.2	11	7.5	6.6

Declaration: SIL 2 acc. to EXIDA FMEDA

Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Relative humidity	≤ 95 %
Test voltage	2.5 kV
MTTF	272 years acc. to SN 29500 (Ed. 99) 40 °C

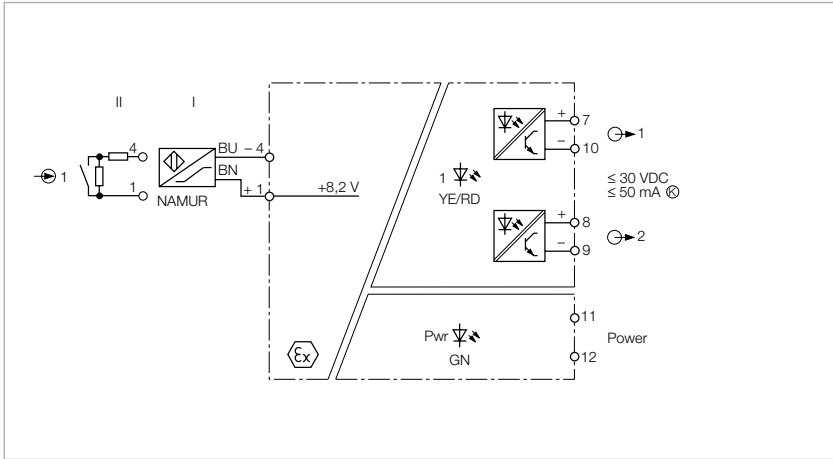
Mechanical data

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 ² / 2 x 1.5 mm ²
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

Approval | Certification

ATEX, IECEx, UL, cFM_{us} , CSA, TR CU, NEPSI, KOSHA, TIS, CCOE

Isolating switching amplifier, 1-channel



Features

- ATEX, IECEx, UL, cFM_{US}, CSA, TR CU, NEPSI, KOSHA, TIIS, CCOE
- Installation in zone 2
- 2 transistor outputs, short-circuit proof, potential-free and reverse-polarity protected
- Output mode adjustable (NO/NC mode)
- Input circuits monitored for wire-break/short-circuit (ON/OFF switchable)
- Complete galvanic isolation

The 1-channel isolating switching amplifier IM1-12EX-T is equipped with an intrinsically safe input circuit.

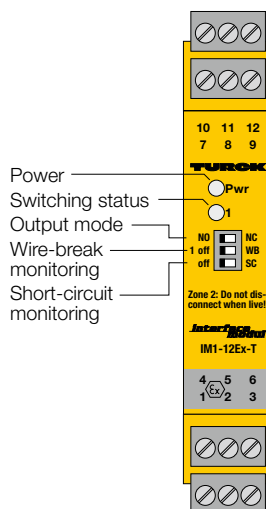
Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact transmitters can be connected to the device.

The output circuits feature 2 potential-free and short-circuit protected transistors.

You can set each channel separately to work/closed current, i.e. NO/NC mode and duplicate signals via 3 switches on the front. The switching state of channel 1 is thereby transmitted to the outputs 1 and 2. You can also set the output mode separately for each channel.

You can also set the output mode separately for each channel.

The Pwr LED lights green to indicate operational readiness. The 2-color LED 1 lights yellow to indicate the switching status of the associated output. In the event of an input circuit error, the associated 2-color LED turns red, provided the input circuit monitoring function is activated. Thereupon the output transistors are blocked.



Technical data

Type	IM1-12EX-T
Ident no.	7541227

Power supply

Nominal voltage	Universal voltage supply unit
Operating voltage range	20...125 VDC
Operating voltage range	20...250 VAC
Frequency	40...70 Hz
Power consumption	≤ 3 W

Inputs

No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold	1.55 mA
Switch-off threshold	1.75 mA
Short-circuit threshold	≥ 6 mA
Wire breakage threshold	≤ 0.1 mA

Outputs

Output circuits (digital)	2 x transistor (potential-free, short-circuit proof)
Switching voltage	≤ 30 VDC
Switching current per output	≤ 50 mA
Switching frequency	≤ 5000 Hz
Voltage drop	≤ 2.5 V

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 04 ATEX 2553
Device designation	⊕ II (1) G, II (1) D [Ex ia Ga] IIC; [Ex ia Da] IIIC
Max. values:	Terminal connection: 1+4
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 65 \mu\text{H}$, C_i negligibly small

External inductance/capacitance L_o/C_o

Ex ia	IIC			IIB		
	1	5	10	2	10	20
L_o [mH]	1	5	10	2	10	20
C_o [μF]	1.1	0.83	0.74	5.2	3.8	3.4

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552968 X
Application area	II 3 G
Protection type	Ex nA [ic Gc] IIC/IIB T4 Gc
Max. values:	Terminal connection: 1+4
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 65 \mu\text{H}$, C_i negligibly small

External inductance/capacitance L_o/C_o

Ex ic	IIC			IIB		
	1	5	10	1	5	10
L_o [mH]	1	5	10	1	5	10
C_o [μF]	1.9	1.4	1.2	11	7.5	6.6

Declaration: SIL 2 acc. to EXIDA FMEDA

Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Relative humidity	≤ 95 %
Test voltage	2.5 kV
MTTF	314 years acc. to SN 29500 (Ed. 99) 40 °C

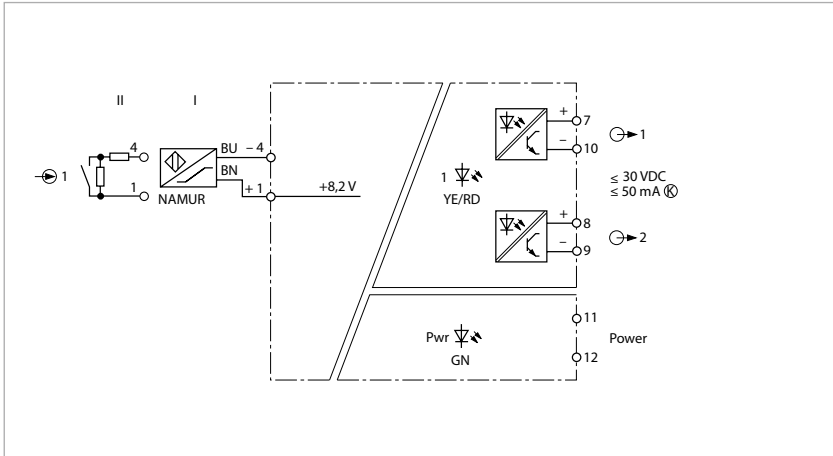
Mechanical data

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 ² / 2 x 1.5 mm ²
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

Approval | Certification

ATEX, IECEx, UL, cFM_{us} , CSA, TR CU, NEPSI, KOSHA, TIS, CCOE

Isolating switching amplifier, 1-channel



Features

- TR CU
- 2 transistor outputs, short-circuit proof, potential-free and reverse-polarity protected
- Output mode adjustable (NO/NC mode)
- Input circuits monitored for wire-break and short-circuit
- Complete galvanic isolation

The isolating switching amplifier IM1-12-T is a 1-channel device.

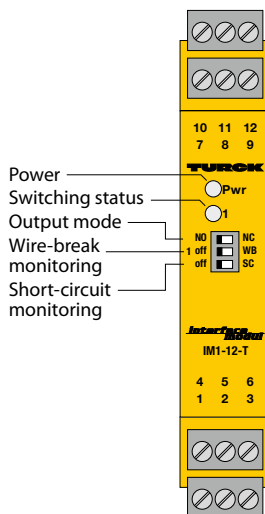
Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact transmitters can be connected to the device.

The output circuits feature 2 potential-free and short-circuit protected transistors.

You can set each channel separately to work/closed current, i.e. NO/NC mode and duplicate signals via 3 switches on the front. The switching state of channel 1 is thereby transmitted to the outputs 1 and 2. You can also set the output mode separately for each channel.

You can also set the output mode separately for each channel.

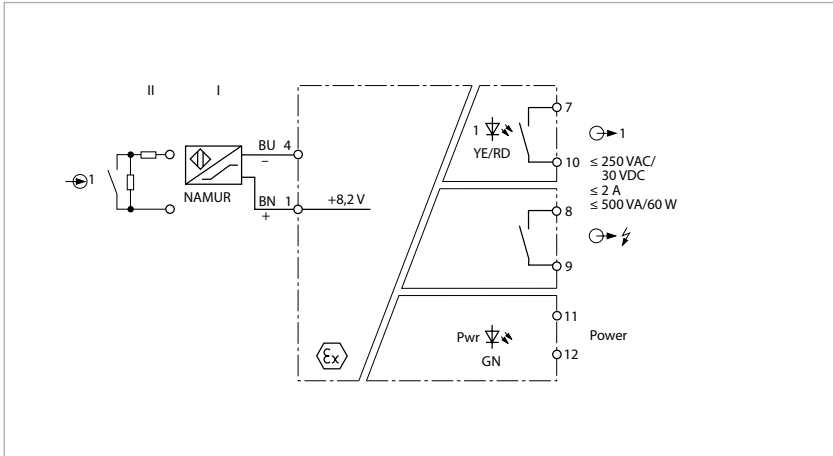
The Pwr LED lights green to indicate operational readiness. The 2-color LED 1 lights yellow to indicate the switching status of the associated output. In the event of an input circuit error, the associated 2-color LED turns red, provided the input circuit monitoring function is activated. Thereupon the output transistors are blocked.



Technical data

Type	IM1-12-T
Ident no.	7541268
Power supply	
Nominal voltage	Universal voltage supply unit
Operating voltage range	20...125 VDC
Operating voltage range	20...250 VAC
Frequency	40...70 Hz
Power consumption	≤ 3 W
Inputs	
No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold	1.55 mA
Switch-off threshold	1.75 mA
Short-circuit threshold	≥ 6 mA
Wire breakage threshold	≤ 0.1 mA
Outputs	
Output circuits (digital)	2 x transistor (potential-free, short-circuit proof)
Switching voltage	≤ 30 VDC
Switching current per output	≤ 50 mA
Switching frequency	≤ 5000 Hz
Voltage drop	≤ 2.5 V
Approvals and declarations	
Declaration	SIL 2 acc. to EXIDA FMEDA
Indication	
Operational readiness	green
Switching state	yellow
Error indication	red
Environmental Conditions	
Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Relative humidity	≤ 95 %
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 ² / 2 x 1.5 mm ²
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
Approval Certification	TR CU

Isolating switching amplifier, 1-channel



Features

- ATEX, IECEx, UL, cFM_{US}, CSA, TR CU, NEPSI, KOSHA, TIIS, CCOE
- Installation in zone 2
- 2 relay outputs (NO)
- Output mode adjustable (NO/NC mode)
- Common alarm output
- Input circuits monitored for wire-break/short-circuit (ON/OFF switchable)
- Complete galvanic isolation

The 1-channel isolating switching amplifier IM1-12EX-R is equipped with an intrinsically safe input circuit.

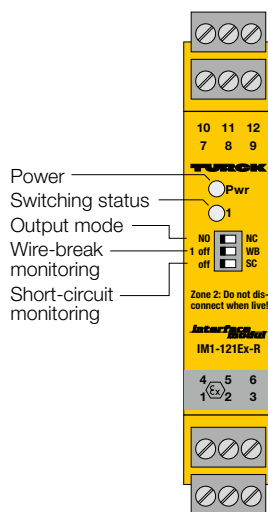
Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact transmitters can be connected to the device.

The output circuits feature two relays each with NO contact, one of which works as alarm output.

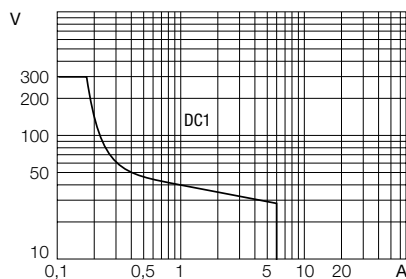
You can set each channel separately to work/closed current, i.e. NO/NC mode and duplicate signals via 3 switches on the front. The switching state of channel 1 is thereby transmitted to the outputs 1 and 2. You can also set the output mode separately for each channel.

You can also set the output mode separately for each channel.

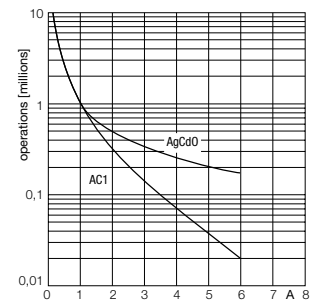
The Pwr LED lights green to indicate operational readiness. The 2-color LED 1 lights yellow to indicate the switching status of the associated output. In the event of an input circuit error, the associated 2-color LED turns red, provided the input circuit monitoring function is activated. Thereupon the output and the alarm relay drop out.



Output relay – Load curve



Output relay – Electrical lifetime



Technical data

Type	IM1-121EX-R
Ident no.	7541229

Power supply

Nominal voltage	Universal voltage supply unit
Operating voltage range	20...125 VDC
Operating voltage range	20...250 VAC
Frequency	40...70 Hz
Power consumption	≤ 3 W

Inputs

No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold	1.55 mA
Switch-off threshold	1.75 mA
Short-circuit threshold	≥ 6 mA
Wire breakage threshold	≤ 0.1 mA

Outputs

Output circuits (digital)	2 x relays (NO)
Switching frequency	≤ 10 Hz
Relay switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 500 VA/60 W
Contact quality	AgNi, 3μ Au

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 04 ATEX 2553
Device designation	⊕ II (1) G, II (1) D [Ex ia Ga] IIC; [Ex ia Da] IIIC
Max. values:	Terminal connection: 1+4
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 65 \mu\text{H}$, C_i negligibly small

External inductance/capacitance L_o/C_o

Ex ia	IIC			IIB		
L_o [mH]	1	5	10	2	10	20
C_o [μF]	1.1	0.83	0.74	5.2	3.8	3.4

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552968 X
Application area	II 3 G
Protection type	Ex nA nC [ic Gc] IIC/IIB T4 Gc
Max. values:	Terminal connection: 1+4
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Characteristic	linear

Internal inductance/capacitance L_i/C_i $L_i = 65 \mu\text{H}$, C_i negligibly small

External inductance/capacitance L_o/C_o

Ex ic	IIC			IIB		
L_o [mH]	1	5	10	1	5	10
C_o [μF]	1.9	1.4	1.2	11	7.5	6.6

Declaration SIL 2 acc. to EXIDA FMEDA

Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Relative humidity	≤ 95 %
Test voltage	2.5 kV
MTTF	272 years acc. to SN 29500 (Ed. 99) 40 °C

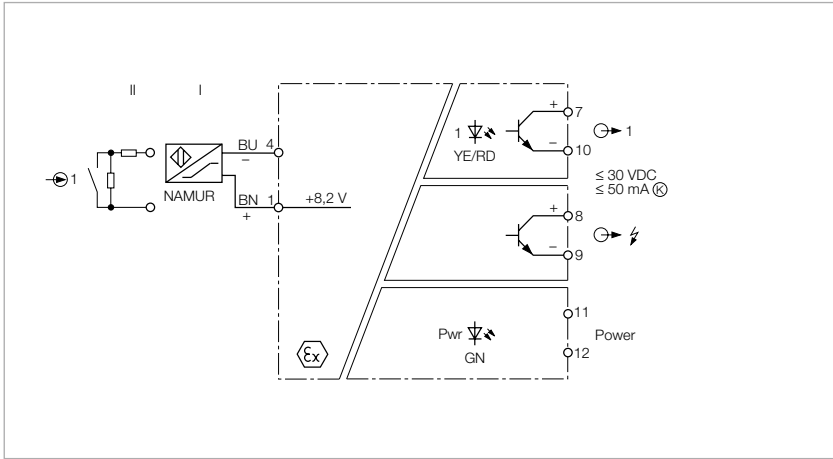
Mechanical data

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 ² / 2 x 1.5 mm ²
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

Approval | Certification

ATEX, IECEx, UL, cFM_{IIS} , CSA, TR CU, NEPSI, KOSHA, TIS, CCOE

Isolating switching amplifier, 1-channel



Features

- ATEX, IECEx, UL, cFM_{US}, CSA, TR CU, NEPSI, KOSHA, TIIS, CCOE
- Installation in zone 2
- 2 transistor outputs, potential-free
- Common alarm output
- Output mode adjustable (NO/NC mode)
- Input circuits monitored for wire-break/short-circuit (ON/OFF switchable)
- Complete galvanic isolation

The 1-channel isolating switching amplifier IM1-121EX-T is equipped with an intrinsically safe input circuit.

Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact transmitters can be connected to the device.

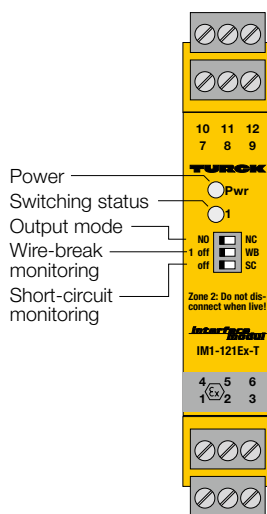
The output circuits feature two potential-free and short circuit protected transistors, one of which works as alarm output.

You can set each channel separately to work/closed current, i.e. NO/NC mode and duplicate signals via 3 switches on the front. The switching state of channel 1 is thereby transmitted to the outputs 1 and 2. You can also set the output mode separately for each channel.

You can also set the output mode separately for each channel.

The Pwr LED lights green to indicate operational readiness. The 2-color LED

lights yellow to indicate the switching status of the associated output. In the event of an input circuit error, the associated 2-color LED turns red, provided the input circuit monitoring function is activated. Thereupon the output and the alarm transistor are blocked.



Technical data

Type	IM1-121EX-T
Ident no.	7541230

Power supply

Nominal voltage	Universal voltage supply unit
Operating voltage range	20...125 VDC
Operating voltage range	20...250 VAC
Frequency	40...70 Hz
Power consumption	≤ 3 W

Inputs

No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold	1.55 mA
Switch-off threshold	1.75 mA
Short-circuit threshold	≥ 6 mA
Wire breakage threshold	≤ 0.1 mA

Outputs

Output circuits (digital)	2 x transistor (potential-free, short-circuit proof)
Switching voltage	≤ 30 VDC
Switching current per output	≤ 50 mA
Switching frequency	≤ 5000 Hz
Voltage drop	≤ 2.5 V

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 04 ATEX 2553
Device designation	⊕ II (1) G, II (1) D [Ex ia Ga] IIC; [Ex ia Da] IIIC
Max. values:	Terminal connection: 1+4
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 65 \mu\text{H}$, C_i negligibly small

External inductance/capacitance L_o/C_o

	Ex ia			IIC		
	1	5	10	1	5	10
L_o [mH]	1	5	10	2	10	20
C_o [μF]	1.1	0.83	0.74	5.2	3.8	3.4

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552968 X
Application area	II 3 G
Protection type	Ex nA [ic Gc] IIC/IIB T4 Gc
Max. values:	Terminal connection: 1+4
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Characteristic	linear

Internal inductance/capacitance L_i/C_i $L_i = 65 \mu\text{H}$, C_i negligibly small

External inductance/capacitance L_o/C_o

	Ex ic			IIC		
	1	5	10	1	5	10
L_o [mH]	1	5	10	1	5	10
C_o [μF]	1.9	1.4	1.2	11	7.5	6.6

Declaration SIL 2 acc. to EXIDA FMEDA

Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Relative humidity	≤ 95 %
Test voltage	2.5 kV
MTTF	314 years acc. to SN 29500 (Ed. 99) 40 °C

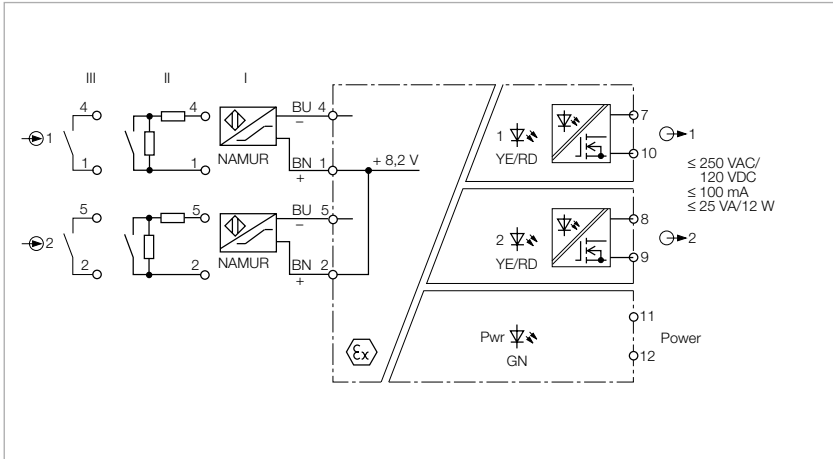
Mechanical data

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 ² / 2 x 1.5 mm ²
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

Approval | Certification

ATEX, IECEx, UL, cFM_{IIS} , CSA, TR CU, NEPSI, KOSHA, TIIS, CCOE

Isolating switching amplifier, 2-channel



Features

- ATEX, IECEx, UL, cFM_{US}, CSA, TR CU, NEPSI, KOSHA, TIIS, CCOE
- Installation in zone 2
- 2 transistor outputs (MOSFET)
- Output mode adjustable (NO/NC mode)
- Input circuits monitored for wire-break/short-circuit (ON/OFF switchable)
- Complete galvanic isolation

The 2-channel isolating switching amplifier IM1-22EX-MT is equipped with intrinsically safe input circuits.

Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact transmitters can be connected to the device.

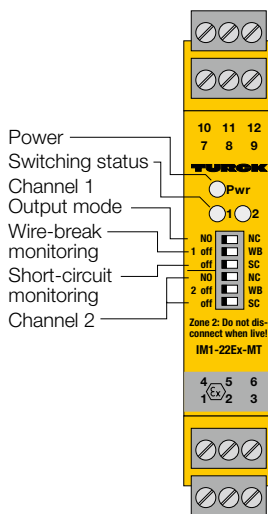
The output circuits feature two potential-free MOSFET transistors.

Six front panel switches are available to set the output mode separately for each channel (NO/NC mode), as well as to enable/disable wire-break (WB) and short-circuit (SC) monitoring separately.

You can also set the output mode separately for each channel.

The Pwr LED lights green to indicate operational readiness. The 2-color LEDs 1

and 2 light yellow to indicate the switching status of the associated output. In the event of an input circuit error, the 2-color LED associated to the affected input turns red, provided the input circuit monitoring function is activated. Thereupon the associated output transistor is blocked.



Technical data

Type	IM1-22EX-MT
Ident no.	7541213

Power supply

Nominal voltage	Universal voltage supply unit
Operating voltage range	20...125 VDC
Operating voltage range	20...250 VAC
Frequency	40...70 Hz
Power consumption	≤ 3 W

Inputs

No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold	1.55 mA
Switch-off threshold	1.75 mA
Short-circuit threshold	≥ 6 mA
Wire breakage threshold	≤ 0.1 mA

Outputs

Output circuits (digital)	2 x MOSFET (potential-free, short-circuit proof)
Switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 100 mA
Switching frequency	≤ 1000 Hz

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 04 ATEX 2553
Device designation	⊕ II (1) G, II (1) D [Ex ia Ga] IIC; [Ex ia Da] IIIC
Max. values:	Terminal connection: 1+4 / 2+5
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 65 \mu\text{H}$, C_i negligibly small

External inductance/capacitance L_o/C_o

Ex ia	IIC			IIB		
L_o [mH]	1	5	10	2	10	20
C_o [μF]	1.1	0.83	0.74	5.2	3.8	3.4

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552968 X
Application area	II 3 G
Protection type	Ex nA [ic Gc] IIC/IIB T4 Gc
Max. values:	Terminal connection: 1+4 / 2+5
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 65 \mu\text{H}$, C_i negligibly small

External inductance/capacitance L_o/C_o

Ex ic	IIC			IIB		
L_o [mH]	1	5	10	1	5	10
C_o [μF]	1.9	1.4	1.2	11	7.5	6.6

Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Relative humidity	≤ 95 %
Test voltage	2.5 kV

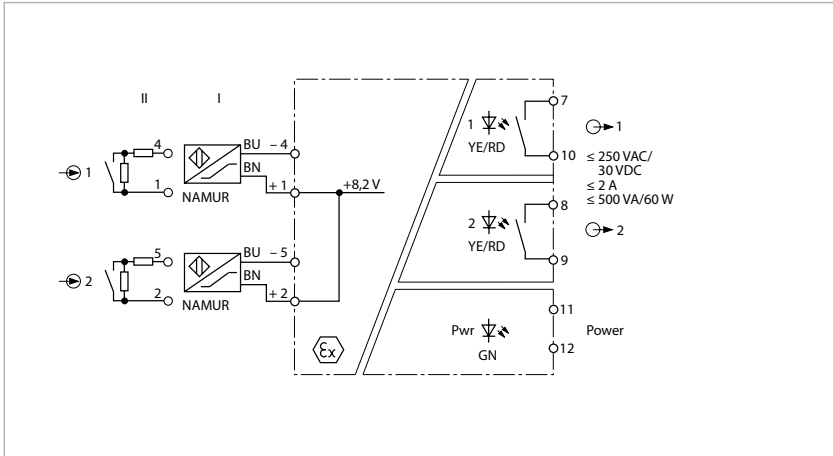
Mechanical data

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 ² / 2 x 1.5 mm ²
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

Approval | Certification

ATEX, IECEx, UL, cFM_{US} , CSA, TR CU, NEPSI, KOSHA, TIIS, CCOE

Isolating switching amplifier, 2-channel



Features

- ATEX, IECEx, UL, cFM_{US}, CSA, TR CU, NEPSI, KOSHA, TIIS, CCOE
- Installation in zone 2
- 2 relay outputs (NO)
- Output mode adjustable (NO/NC mode)
- Input circuits monitored for wire-break/short-circuit (ON/OFF switchable)
- Complete galvanic isolation

The 2-channel isolating switching amplifier IM1-22EX-R is equipped with intrinsically safe input circuits.

Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact transmitters can be connected to the device.

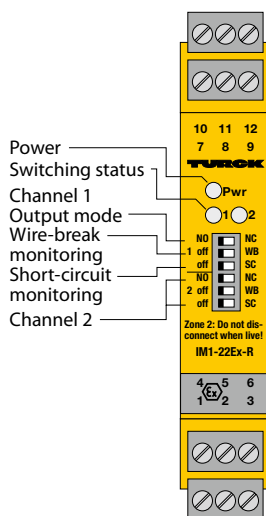
The output circuits have 2 relays, each with 1 NO contact.

Six front panel switches are available to set the output mode separately for each channel (NO/NC mode), as well as to enable/disable wire-break (WB) and short-circuit (SC) monitoring separately.

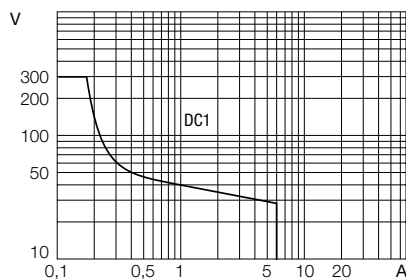
You can also set the output mode separately for each channel.

The Pwr LED lights green to indicate operational readiness. The 2-color LEDs 1

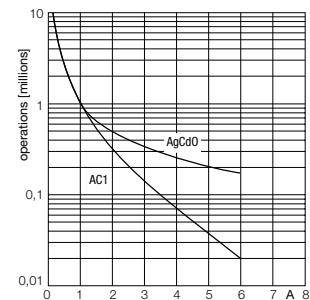
and 2 light yellow to indicate the switching status of the associated output. In the event of an input circuit error, the 2-color LED associated to the affected input turns red, provided the input circuit monitoring function is activated. Thereupon the output relay drops out.



Output relay – Load curve



Output relay – Electrical lifetime



Technical data

Type	IM1-22EX-R
Ident no.	7541231

Power supply

Nominal voltage	Universal voltage supply unit
Operating voltage range	20...125 VDC
Operating voltage range	20...250 VAC
Frequency	40...70 Hz
Power consumption	≤ 3 W

Inputs

No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold	1.55 mA
Switch-off threshold	1.75 mA
Short-circuit threshold	≥ 6 mA
Wire breakage threshold	≤ 0.1 mA

Outputs

Output circuits (digital)	2 x relays (NO)
Switching frequency	≤ 10 Hz
Relay switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 500 VA/60 W
Contact quality	AgNi, 3μ Au

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 04 ATEX 2553
Device designation	Ⓔ II (1) G, II (1) D [Ex ia Ga] IIC; [Ex ia Da] IIIC
Max. values:	Terminal connection: 1+4 / 2+5
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 65 \mu\text{H}$, C_i negligibly small

External inductance/capacitance L_o/C_o

Ex ia	IIC			IIB		
L_o [mH]	1	5	10	2	10	20
C_o [μF]	1.1	0.83	0.74	5.2	3.8	3.4

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552968 X
Application area	II 3 G
Protection type	Ex nA nC [ic Gc] IIC/IIB T4 Gc
Max. values:	Terminal connection: 1+4 / 2+5
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Characteristic	linear

Internal inductance/capacitance L_i/C_i $L_i = 65 \mu\text{H}$, C_i negligibly small

External inductance/capacitance L_o/C_o

Ex ic	IIC			IIB		
L_o [mH]	1	5	10	1	5	10
C_o [μF]	1.9	1.4	1.2	11	7.5	6.6

Declaration SIL 2 acc. to EXIDA FMEDA

Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Relative humidity	≤ 95 %
Test voltage	2.5 kV
MTTF	272 years acc. to SN 29500 (Ed. 99) 40 °C

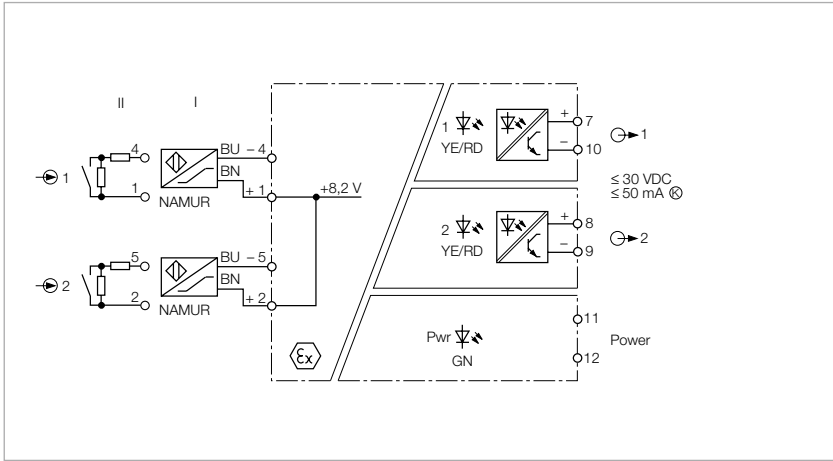
Mechanical data

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 ² / 2 x 1.5 mm ²
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

Approval | Certification

ATEX, IECEx, UL, cFM_{IIS} , CSA, TR CU, NEPSI, KOSHA, TIIS, CCOE

Isolating switching amplifier, 2-channel



Features

- ATEX, IECEx, UL, cFM_{US}, CSA, TR CU, NEPSI, KOSHA, TIIS, CCOE
- Installation in zone 2
- 2 transistor outputs
- Output mode adjustable (NO/NC mode)
- Input circuits monitored for wire-break/short-circuit (ON/OFF switchable)
- Complete galvanic isolation

The 2-channel isolating switching amplifier IM1-22EX-T is equipped with intrinsically safe input circuits.

Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact transmitters can be connected to the device.

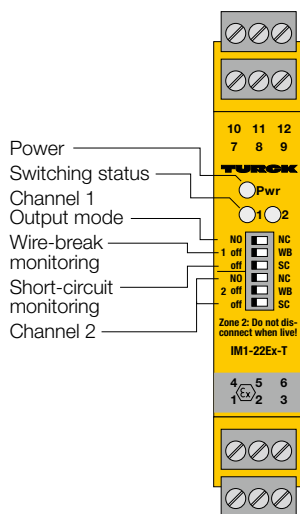
The output circuits feature 2 potential-free and short-circuit protected transistors.

Six front panel switches are available to set the output mode separately for each channel (NO/NC mode), as well as to enable/disable wire-break (WB) and short-circuit (SC) monitoring separately.

You can also set the output mode separately for each channel.

The Pwr LED lights green to indicate operational readiness. The 2-color LEDs 1 and 2 light yellow to indicate the switch-

ing status of the associated output. In the event of an input circuit error, the 2-color LED associated to the affected input turns red, provided the input circuit monitoring function is activated. Thereupon the associated output transistor is blocked.



Technical data

Type	IM1-22EX-T
Ident no.	7541232

Power supply

Nominal voltage	Universal voltage supply unit
Operating voltage range	20...125 VDC
Operating voltage range	20...250 VAC
Frequency	40...70 Hz
Power consumption	≤ 3 W

Inputs

No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold	1.55 mA
Switch-off threshold	1.75 mA
Short-circuit threshold	≥ 6 mA
Wire breakage threshold	≤ 0.1 mA

Outputs

Output circuits (digital)	2 x transistor (potential-free, short-circuit proof)
Switching voltage	≤ 30 VDC
Switching current per output	≤ 50 mA
Switching frequency	≤ 5000 Hz
Voltage drop	≤ 2.5 V

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 04 ATEX 2553
Device designation	⊕ II (1) G, II (1) D [Ex ia Ga] IIC; [Ex ia Da] IIIC
Max. values:	Terminal connection: 1+4 / 2+5
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 65 \mu\text{H}$, C_i negligibly small

External inductance/capacitance L_o/C_o

	Ex ia			IIC		
	1	5	10	2	10	20
L_o [mH]	1	5	10	2	10	20
C_o [μF]	1.1	0.83	0.74	5.2	3.8	3.4

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552968 X
Application area	II 3 G
Protection type	Ex nA [ic Gc] IIC/IIB T4 Gc
Max. values:	Terminal connection: 1+4 / 2+5
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Characteristic	linear

Internal inductance/capacitance L_i/C_i $L_i = 65 \mu\text{H}$, C_i negligibly small

External inductance/capacitance L_o/C_o

	Ex ic			IIC		
	1	5	10	1	5	10
L_o [mH]	1	5	10	1	5	10
C_o [μF]	1.9	1.4	1.2	11	7.5	6.6

Declaration SIL 2 acc. to EXIDA FMEDA

Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Relative humidity	≤ 95 %
Test voltage	2.5 kV
MTTF	314 years acc. to SN 29500 (Ed. 99) 40 °C

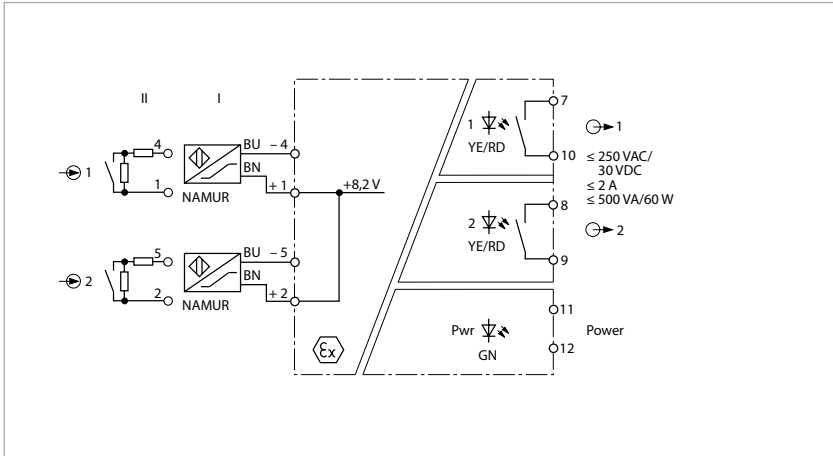
Mechanical data

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 ² / 2 x 1.5 mm ²
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

Approval | Certification

ATEX, IECEx, UL, cFM_{157} , CSA, TR CU, NEPSI, KOSHA, TIIS, CCOE

Isolating switching amplifier, 2-channel



Features

- ATEX, IECEx, UL, cFM_{US}, CSA, TR CU, KOSHA, CCOE
- Installation in zone 2
- 2 relay outputs (NO)
- Output mode adjustable (NO/NC mode)
- Input circuits monitored for wire-break/short-circuit (ON/OFF switchable)
- Test voltage 4.0 kV
- Complete galvanic isolation

The 2-channel isolating switching amplifier IM1-22EX-R/K51 is equipped with intrinsically safe input circuits.

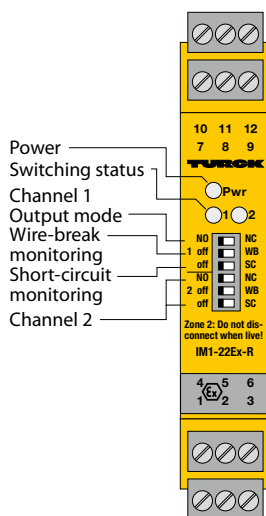
Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact transmitters can be connected to the device.

The output circuits have 2 relays, each with 1 NO contact.

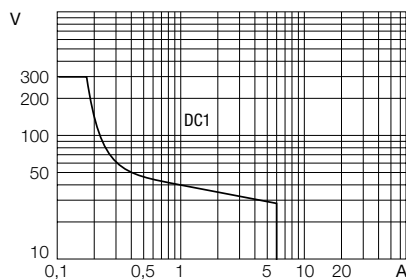
You can set each channel separately to work/closed current, i.e. NO/NC mode and duplicate signals via 3 switches on the front. The switching state of channel 1 is thereby transmitted to the outputs 1 and 2. You can also set the output mode separately for each channel.

The Pwr LED lights green to indicate operational readiness. The 2-color LEDs 1 and 2 light yellow to indicate the switch-

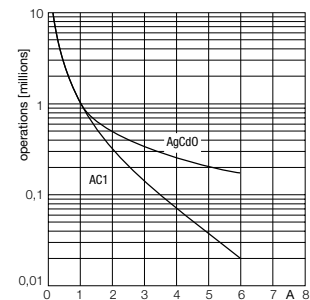
ing status of the associated output. In the event of an input circuit error, the 2-color LED associated to the affected input turns red, provided the input circuit monitoring function is activated. Thereupon the output relay drops out.



Output relay – Load curve



Output relay – Electrical lifetime



Technical data

Type	IM1-22EX-R/K51
Ident no.	7541238

Power supply

Nominal voltage	Universal voltage supply unit
Operating voltage range	20...125 VDC
Operating voltage range	20...250 VAC
Frequency	40...70 Hz
Power consumption	≤ 3 W

Inputs

No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold	1.55 mA
Switch-off threshold	1.75 mA
Short-circuit threshold	≥ 6 mA
Wire breakage threshold	≤ 0.1 mA

Outputs

Output circuits (digital)	2 x relays (NO)
Switching frequency	≤ 10 Hz
Relay switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 500 VA/60 W
Contact quality	AgNi, 3μ Au

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 04 ATEX 2553
Device designation	Ⓔ II (1) G, II (1) D [Ex ia Ga] IIC; [Ex ia Da] IIIC
Max. values:	Terminal connection: 1+4 / 2+5
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 65 \mu\text{H}$, C_i negligibly small

External inductance/capacitance L_o/C_o

Ex ia	IIC			IIB		
L_o [mH]	1	5	10	2	10	20
C_o [μF]	1.1	0.83	0.74	5.2	3.8	3.4

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552968 X
Application area	II 3 G
Protection type	Ex nA nC [ic Gc] IIC/IIB T4 Gc
Max. values:	Terminal connection: 1+4 / 2+5
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 65 \mu\text{H}$, C_i negligibly small

External inductance/capacitance L_o/C_o

Ex ic	IIC			IIB		
L_o [mH]	1	5	10	1	5	10
C_o [μF]	1.9	1.4	1.2	11	7.5	6.6

Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Relative humidity	≤ 95 %
Test voltage	4.0 kV

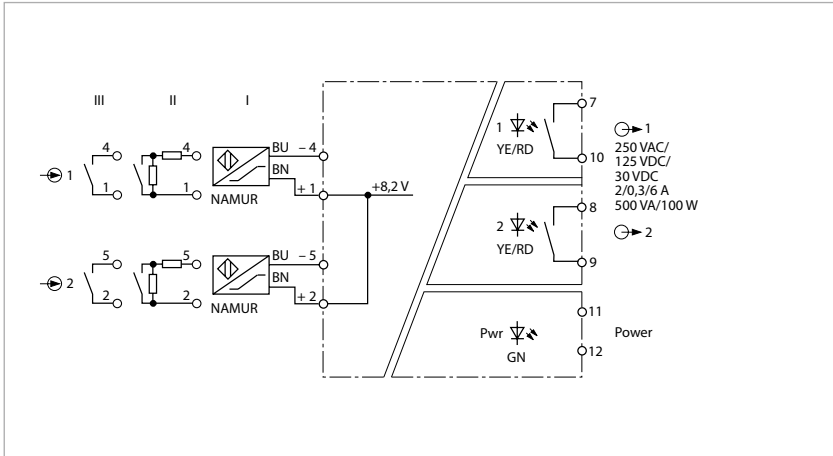
Mechanical data

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 ² / 2 x 1.5 mm ²
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

Approval | Certification

ATEX, IECEx, UL, cFM_{us} , CSA, TR CU, NEPSI, KOSHA, CCOE

Isolating switching amplifier, 2-channel



Features

- TR CU
- 2 relay outputs (NO)
- Output mode adjustable (NO/NC mode)
- Input circuits monitored for wire-break/short-circuit (ON/OFF switchable)
- Complete galvanic isolation

The isolating switching amplifier IM1-22-R is a 2-channel device.

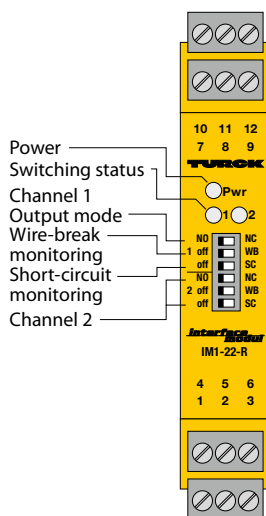
Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact transmitters can be connected to the device.

The output circuits have 2 relays, each with 1 NO contact.

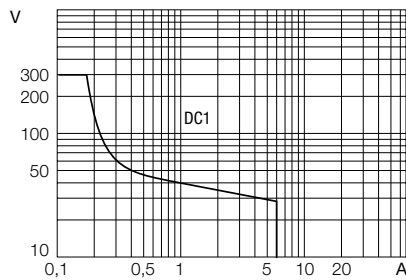
Six front panel switches are available to set the output mode separately for each channel (NO/NC mode), as well as to enable/disable wire-break (WB) and short-circuit (SC) monitoring separately.

The Pwr LED lights green to indicate operational readiness. The 2-color LEDs 1 and 2 light yellow to indicate the switching status of the associated output. In the

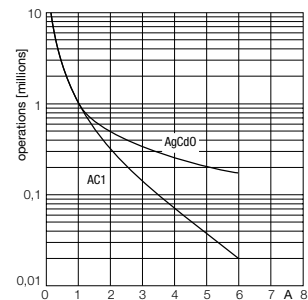
event of an input circuit error, the 2-color LED associated to the affected input turns red, provided the input circuit monitoring function is activated. Thereupon the output relay drops out.



Output relay – Load curve



Output relay – Electrical lifetime



Technical data

Type	IM1-22-R
Ident no.	7541234

Approval Certification	TR CU
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Power supply

Nominal voltage	Universal voltage supply unit
Operating voltage range	20...125 VDC
Operating voltage range	20...250 VAC
Frequency	40...70 Hz
Power consumption	≤ 3 W

Inputs

No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold	1.55 mA
Switch-off threshold	1.75 mA
Short-circuit threshold	≥ 6 mA
Wire breakage threshold	≤ 0.1 mA

Outputs

Output circuits (digital)	2 x relays (NO)
Switching frequency	≤ 10 Hz
Relay switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 500 VA/60 W
Contact quality	AgNi, 3μ Au

Approvals and declarations

Declaration	SIL 2 acc. to EXIDA FMEDA
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Indication

Operational readiness	green
Switching state	yellow
Error indication	red

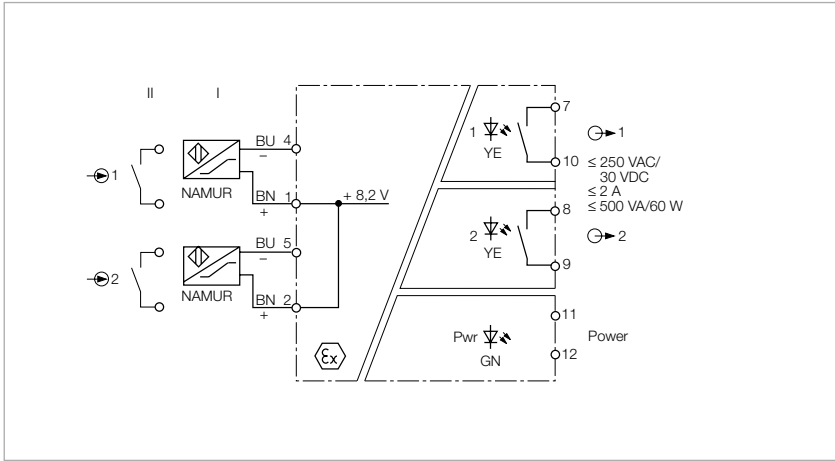
Environmental Conditions

Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Relative humidity	≤ 95 %
Test voltage	2.5 kV
MTTF	272 years acc. to SN 29500 (Ed. 99) 40 °C

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 ² / 2 x 1.5 mm ²
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

Isolating switching amplifier, 2-channel



Features

- ATEX, IECEx, UL, cFM_{US}, CSA, TR CU, NEPSI, KOSHA, TIIS, CCOE
- Installation in zone 2
- 2 relay outputs (NO)
- Output mode adjustable (NO/NC mode)
- Duplicating of signals possible
- Complete galvanic isolation

The 2-channel isolating switching amplifier IM12-22EX-R is equipped with intrinsically safe input circuits.

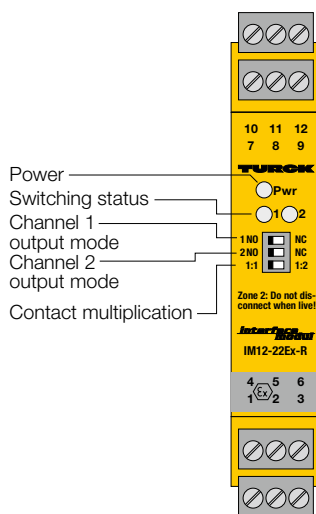
Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact transmitters can be connected to the device.

The output circuits have 2 relays, each with 1 NO contact.

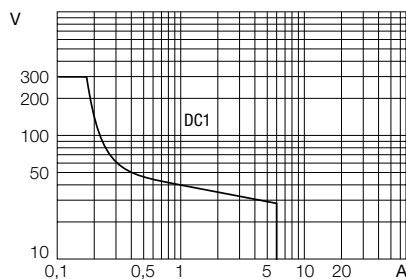
You can set each channel separately to work/closed current, i.e. NO/NC mode and duplicate signals via 3 switches on the front. The switching state of channel 1 is thereby transmitted to the outputs 1 and 2. You can also set the output mode separately for each channel.

You can also set the output mode separately for each channel.

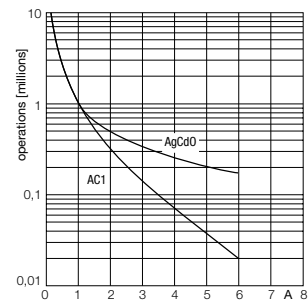
The Pwr LED lights green to indicate operational readiness. LED 1 lights yellow to indicate the switching status of the output.



Output relay – Load curve



Output relay – Electrical lifetime



Technical data

Type	IM12-22EX-R
Ident no.	7541233

Power supply

Nominal voltage	Universal voltage supply unit
Operating voltage range	20...125 VDC
Operating voltage range	20...250 VAC
Frequency	40...70 Hz
Power consumption	≤ 3 W

Inputs

No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold	1.55 mA
Switch-off threshold	1.75 mA

Outputs

Output circuits (digital)	2 x relays (NO)
Switching frequency	≤ 10 Hz
Relay switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 500 VA/60 W
Contact quality	AgNi, 3μ Au

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 04 ATEX 2553
Device designation	⊕ II (1) G, II (1) D [Ex ia Ga] IIC; [Ex ia Da] IIIC
Max. values:	Terminal connection: 1+4 / 2+5
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 65 \mu\text{H}$, C_i negligibly small

External inductance/capacitance L_o/C_o

Ex ia	IIC			IIB		
L_o [mH]	1	5	10	2	10	20
C_o [μF]	1.1	0.83	0.74	5.2	3.8	3.4

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552968 X
Application area	II 3 G
Protection type	Ex nA nC [ic Gc] IIC/IIB T4 Gc
Max. values:	Terminal connection: 1+4 / 2+5
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 65 \mu\text{H}$, C_i negligibly small

External inductance/capacitance L_o/C_o

Ex ic	IIC			IIB		
L_o [mH]	1	5	10	1	5	10
C_o [μF]	1.9	1.4	1.2	11	7.5	6.6

Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Relative humidity	≤ 95 %
Test voltage	2.5 kV

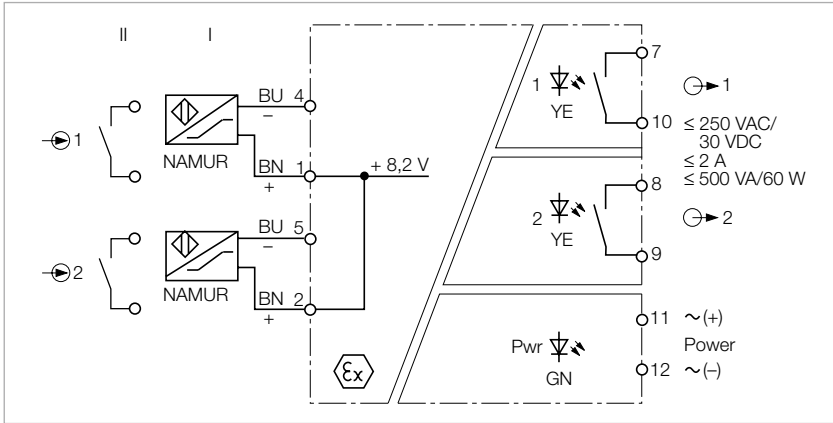
Mechanical data

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 ² / 2 x 1.5 mm ²
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

Approval | Certification

ATEX, IECEx, UL, cFM_{us} , CSA, TR CU, NEPSI, KOSHA, TIIS, CCOE

Isolating switching amplifier, 2-channel



Features

- ATEX, TR CU
- Output mode adjustable (NO/NC mode)
- Duplicating of signals possible
- Complete galvanic isolation

The 2-channel isolating switching amplifier IM12-22EX-R/230VAC is equipped with intrinsically safe input circuits.

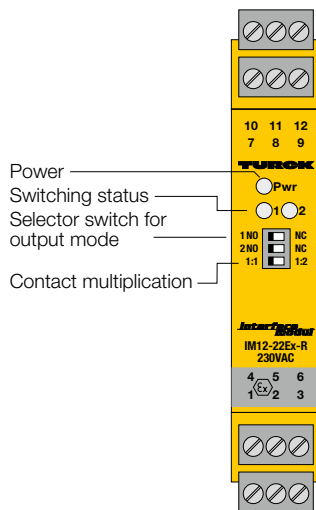
Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact transmitters can be connected to the device.

The output circuits have 2 relays, each with 1 NO contact.

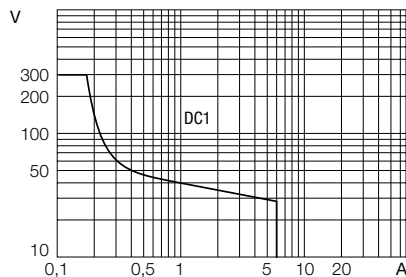
You can set each channel separately to work/closed current, i.e. NO/NC mode and duplicate signals via 3 switches on the front. The switching state of channel 1 is thereby transmitted to the outputs 1 and 2. You can also set the output mode separately for each channel.

You can also set the output mode separately for each channel.

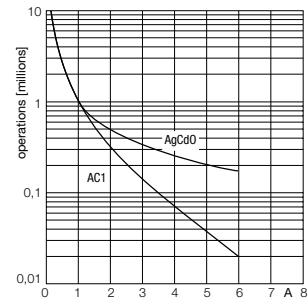
The Pwr LED lights green to indicate operational readiness. LED 1 lights yellow to indicate the switching status of the output.



Output relay – Load curve



Output relay – Electrical lifetime



Technical data

Type	IM12-22EX-R/230VAC
Ident no.	7505641

Power supply

Nominal voltage	230 VAC
Operating voltage range	196...253 VAC
Frequency	48...62 Hz
Power consumption	≤ 7 VA

Inputs

No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold	1.55 mA
Switch-off threshold	1.75 mA

Outputs

Output circuits (digital)	2 x relays (NO)
Switching frequency	≤ 10 Hz
Relay switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 500 VA/60 W
Contact quality	AgNi, 3μ Au

Approvals and declarations

Ex approval acc. to conformity certificate	PTB 00 ATEX 2033
Device designation	Ⓔ II (1) G, II (1) D [Ex ia Ga] IIC; [Ex ia Da] IIIC
Max. values:	Terminal connection: 1...6
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 21.4 mA
Max. output power P_o	≤ 26 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	C_i negligibly small, L_i negligibly small

External inductance/capacitance L_o/C_o

	Ex ia		IIC	
L_o [mH]	1	5	1	5
C_o [μF] (2 terminals)	1.1	0.84	6.2	4.4
C_o [μF] (3 terminals or more)	1.1	0.8	6.2	4.3

Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

Ambient temperature	-25...+60 °C
Storage temperature	-40...+80 °C
Relative humidity	≤ 95 %
Test voltage	2.5 kV

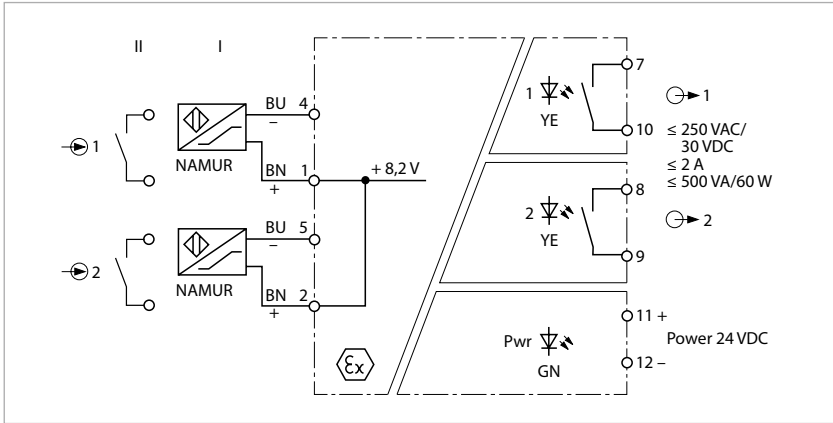
Mechanical data

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 ² / 2 x 1.5 mm ²
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

Approval | Certification

ATEX, TR CU

Isolating switching amplifier, 2-channel



Features

- ATEX, cFM_{US}, TR CU
- Output mode adjustable (NO/NC mode)
- Duplicating of signals possible
- Complete galvanic isolation

The 2-channel isolating switching amplifier IM12-22EX-R/24VDC is equipped with intrinsically safe input circuits.

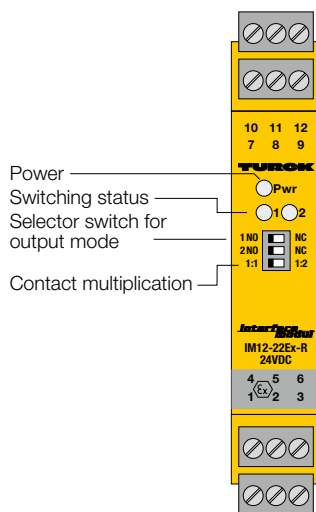
Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact transmitters can be connected to the device.

The output circuits have 2 relays, each with 1 NO contact.

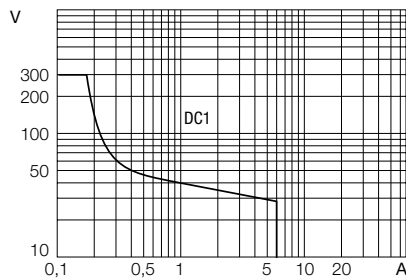
You can set each channel separately to work/closed current, i.e. NO/NC mode and duplicate signals via 3 switches on the front. The switching state of channel 1 is thereby transmitted to the outputs 1 and 2. You can also set the output mode separately for each channel.

You can also set the output mode separately for each channel.

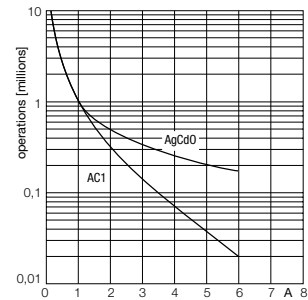
The Pwr LED lights green to indicate operational readiness. LED 1 lights yellow to indicate the switching status of the output.



Output relay – Load curve



Output relay – Electrical lifetime



Technical data

Type	IM12-22EX-R/24VDC
Ident no.	7505640

Power supply

Nominal voltage	24 VDC
Operating voltage range	10...30 VDC
Power consumption	≤ 1.5 W

Inputs

No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold:	1.55 mA
Switch-off threshold:	1.75 mA

Outputs

Output circuits (digital)	2 x relays (NO)
Switching frequency	≤ 10 Hz
Relay switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 500 VA/60 W
Contact quality	AgNi, 3μ Au

Approvals and declarations

Ex approval acc. to conformity certificate	PTB 00 ATEX 2033
Device designation	⊕ II (1) G, II (1) D [Ex ia Ga] IIC; [Ex ia Da] IIIC
Max. values:	Terminal connection: 1...6
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 21.4 mA
Max. output power P_o	≤ 26 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	C_i negligibly small, L_i negligibly small

External inductance/capacitance L_o/C_o

	IIC		IIIC	
L_o [mH]	1	5	1	5
C_o [μF] (2 terminals)	1.1	0.84	6.2	4.4
C_o [μF] (3 terminals or more)	1.1	0.8	6.2	4.3

Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

Ambient temperature	-25...+60 °C
Storage temperature	-40...+80 °C
Relative humidity	≤ 95 %
Test voltage	2.5 kV

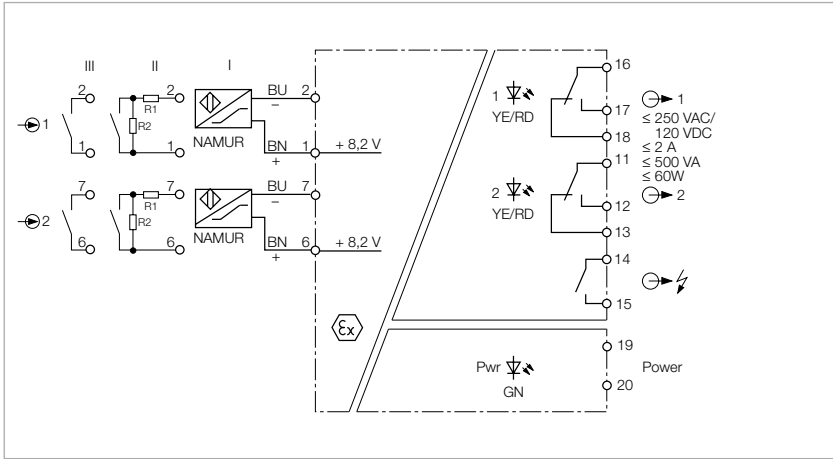
Mechanical data

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 ² / 2 x 1.5 mm ²
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

Approval | Certification

ATEX, c FM_{US}, TR CU

Isolating switching amplifier, 2-channel



Features

- ATEX, IECEx, TR CU, INMETRO
- Installation in zone 2
- 2 relay outputs (changeover)
- Output mode adjustable (NO/NC mode)
- Input circuits monitored for wire-break/short-circuit (ON/OFF switchable)
- Common alarm output
- Complete galvanic isolation

The 2-channel isolating switching amplifier IM1-231EX-R is equipped with intrinsically safe input circuits.

Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact transmitters can be connected to the device.

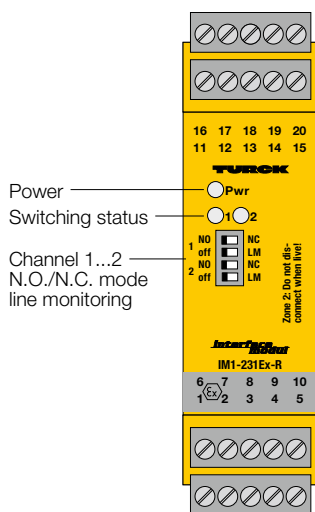
The output circuits each have a relay with a changeover contact. In addition, the device features a common alarm output.

Four front panel switches are available to set the output mode separately for each channel (NO or NC mode), as well as to enable/disable line monitoring (LM).

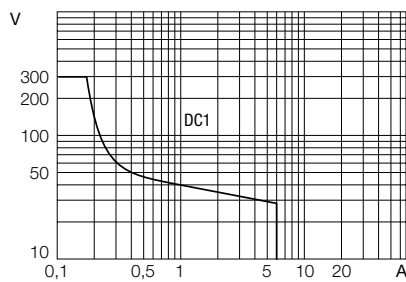
You can also set the output mode separately for each channel.

The Pwr LED lights green to indicate operational readiness. The 2-color LED lights yellow to indicate the switching status of the associated output. In the event of an input circuit error, the 2-color

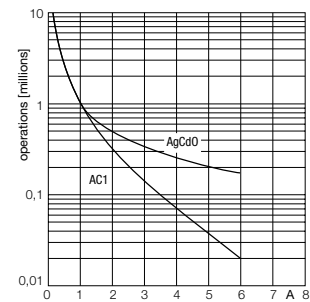
LED turns red, provided the input circuit monitoring function is activated. Thereupon the output and the alarm relay drop out.



Output relay – Load curve



Output relay – Electrical lifetime



Technical data

Type	IM1-231EX-R
Ident no.	7541239

Power supply

Nominal voltage	Universal voltage supply unit
Operating voltage range	20...125 VDC
Operating voltage range	20...250 VAC
Frequency	40...70 Hz
Power consumption	≤ 3 W

Inputs

No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold:	1.55 mA
Switch-off threshold:	1.75 mA
Short-circuit threshold	≥ 6 mA
Wire breakage threshold	≤ 0.1 mA

Outputs

Output circuits (digital)	2 x relay (change-over)
Switching frequency	≤ 10 Hz
Relay switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 500 VA/60 W
Contact quality	AgNi, 3μ Au

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 04 ATEX 2604
Device designation	Ⓔ II (1) G, II (1) D [Ex ia Ga] IIC ; [Ex ia Da] IIIC
Max. output voltage U_o	≤ 11.3 V
Max. output current I_o	≤ 13 mA
Max. output power P_o	≤ 36 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 100 \mu\text{H}$; $C_i = 1.1 \text{ nF}$

External inductance/capacitance L_o/C_o

Ex ia	IIC			IIB		
L_o [mH]	1.0	5.0	10	2.0	10.0	20.0
C_o [μF]	0.84	0.62	0.55	4.0	2.8	2.5

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552967 X
Application area	II 3 G
Protection type	Ex nA nC [ic Gc] IIC T4
Max. values:	Terminal connection: 1+2 / 4...7 / 9+10
Max. output voltage U_o	≤ 11.3 V
Max. output current I_o	≤ 13 mA
Max. output power P_o	≤ 36 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 100 \mu\text{H}$; $C_i = 1.1 \text{ nF}$

External inductance/capacitance L_o/C_o

Ex ic	IIC			IIB		
L_o [mH]	10	5.0	1	20	10.0	2
C_o [μF]	0.91	1.0	1.5	4.3	4.9	6.8

Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Relative humidity	≤ 95 %
Test voltage	2.5 kV

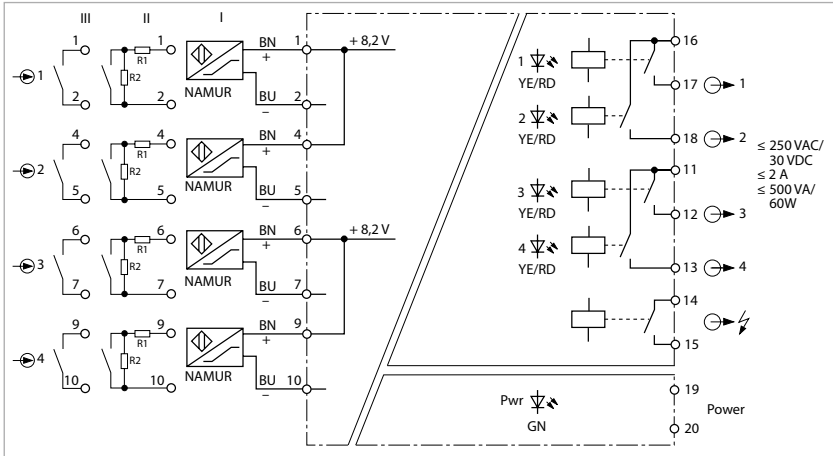
Mechanical data

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 ² / 2 x 1.5 mm ²
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

Approval | Certification

ATEX, IECEx, TR CU, INMETRO

Isolating switching amplifier, 4-channel



Features

- TR CU
- 5 relay outputs (NO)
- Output mode adjustable (NO/NC mode)
- Input circuits monitored for wire-break/short-circuit (ON/OFF switchable)
- Common alarm output
- Complete galvanic isolation

Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact makers can be connected to the 4-channel isolating transducer IM1-451-R.

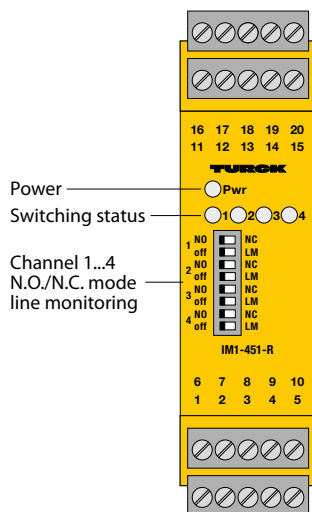
The output circuits each feature a relay with NO contact. In addition, the device features a common alarm output.

The output mode (NO/NC) can be set separately for each channel and wire-

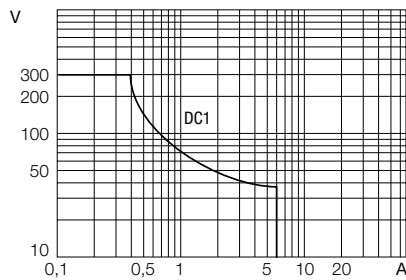
break (WB) and short-circuit (SC) can be switched on/off via the eight switches on the front.

When using mechanical contacts, wire-break and short-circuit monitoring must be switched off or the contacts must be wired with resistors (II) (see circuit diagram).

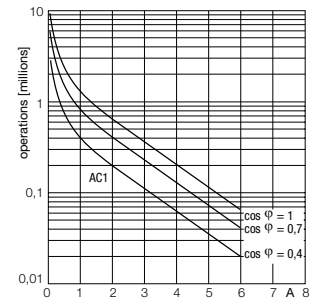
The Pwr LED lights green to indicate operational readiness. The 2-color LED 1 lights yellow to indicate the switching status of the associated output. In the event of an input circuit error, the associated 2-color LED turns red, provided the input circuit monitoring function is activated. Thereupon the output and the alarm relay drop out.



Output relay – Load curve



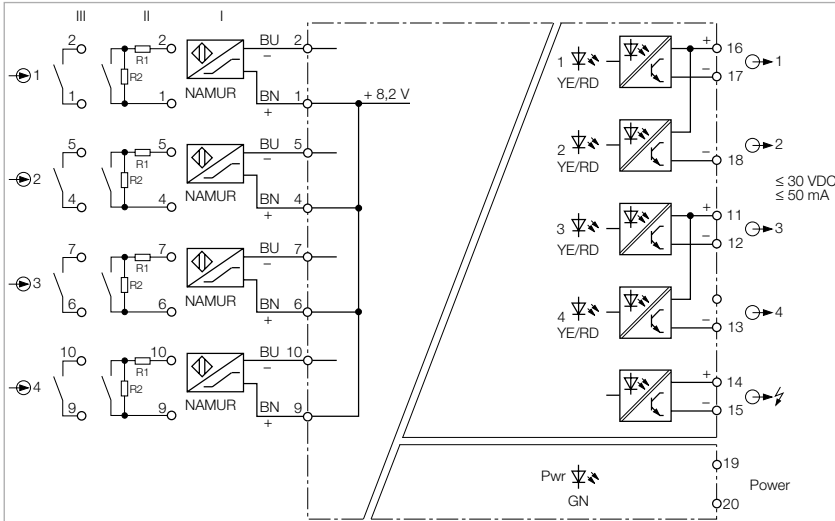
Output relay – Electrical lifetime



Technical data

Type	IM1-451-R
Ident no.	7541190
Power supply	
Nominal voltage	Universal voltage supply unit
Operating voltage range	20...250 VDC
Operating voltage range	20...250 VAC
Frequency	40...70 Hz
Power consumption	≤ 3 W
Inputs	
No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold:	1.55 mA
Switch-off threshold:	1.75 mA
Short-circuit threshold	≥ 6 mA
Wire breakage threshold	≤ 0.1 mA
Outputs	
Output circuits (digital)	5 x relays (NO)
Switching frequency	≤ 10 Hz
Relay switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 750 VA/60 W
Contact quality	AgNi, 3μ Au
Indication	
Operational readiness	green
Switching state	yellow
Error indication	red
Environmental Conditions	
Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Relative humidity	≤ 95 %
Test voltage	2.5 kV
Mechanical data	
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 ² / 2 x 1.5 mm ²
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
Approval Certification	TR CU

Isolating switching amplifier, 4-channel



Features

- TR CU
- 5 transistor outputs, short-circuit proof, potential-free and reverse-polarity protected
- Output mode adjustable (NO/NC mode)
- Input circuits monitored for wire-break/short-circuit (ON/OFF switchable)
- Common alarm output
- Complete galvanic isolation

Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact makers can be connected to the 4-channel isolating transducer IM1-451-T.

The output circuits each feature a potential-free and short-circuit proof transistor and the device also has a common alarm output.

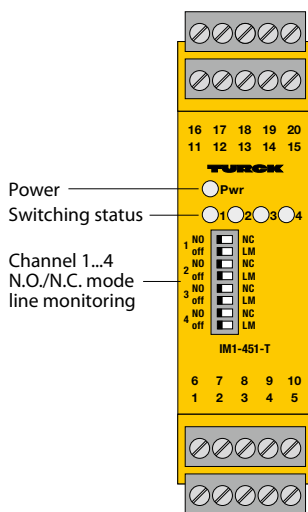
The output mode (NO/NC) can be set separately for each channel and wire-

break (WB) and short-circuit (SC) can be switched on/off via the eight switches on the front.

When using mechanical contacts, wire-break and short-circuit monitoring must be switched off or the contacts must be wired with resistors (II) (see circuit diagram).

The Pwr LED lights green to indicate operational readiness. The 2-color LED

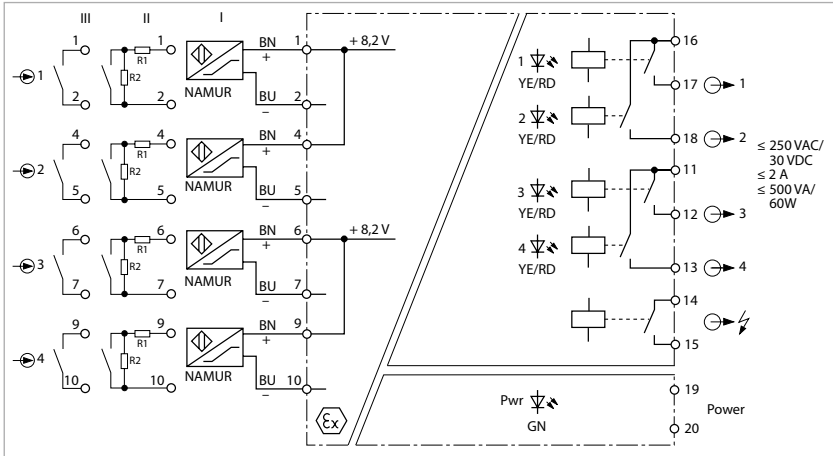
lights yellow to indicate the switching status of the associated output. In the event of an input circuit error, the associated 2-color LED turns red, provided the input circuit monitoring function is activated. Thereupon the output and the alarm transistor are blocked.



Technical data

Type	IM1-451-T
Ident no.	7520721
Power supply	
Nominal voltage	Universal voltage supply unit
Operating voltage range	20...250 VDC
Operating voltage range	20...250 VAC
Frequency	40...70 Hz
Power consumption	≤ 3 W
Inputs	
No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold:	1.55 mA
Switch-off threshold:	1.75 mA
Short-circuit threshold	≥ 6 mA
Wire breakage threshold	≤ 0.1 mA
Outputs	
Output circuits (digital)	5 x transistor (potential-free, short-circuit proof)
Switching voltage	≤ 30 VDC
Switching current per output	≤ 50 mA
Switching frequency	≤ 5000 Hz
Voltage drop	≤ 2.5 V
Indication	
Operational readiness	green
Switching state	yellow
Error indication	red
Environmental Conditions	
Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Relative humidity	≤ 95 %
Test voltage	2.5 kV
Mechanical data	
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 ² / 2 x 1.5 mm ²
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
Approval Certification	TR CU

Isolating switching amplifier, 4-channel



Features

- ATEX, IECEx, UL, cFM_{US}, CSA, TR CU, IN-METRO, TIIS
- Installation in zone 2
- 5 relay outputs (NO)
- Output mode adjustable (NO/NC mode)
- Input circuits monitored for wire-break/short-circuit (ON/OFF switchable)
- Common alarm output
- Complete galvanic isolation

The 4-channel isolating switching amplifier IM1-451EX-R is equipped with intrinsically safe input circuits.

Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact transmitters can be connected to the device.

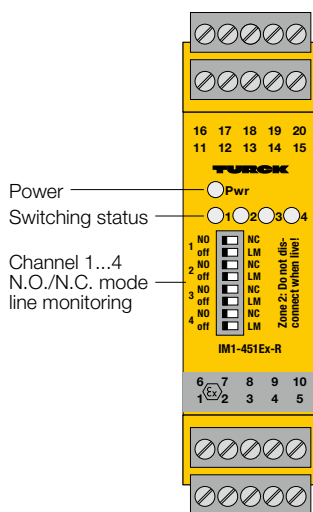
The output circuits each feature a relay with NO contact. In addition, the device features a common alarm output.

Six front panel switches are available to set the output mode separately for each channel (NO/NC mode), as well as to enable/disable wire-break (WB) and short-circuit (SC) monitoring separately.

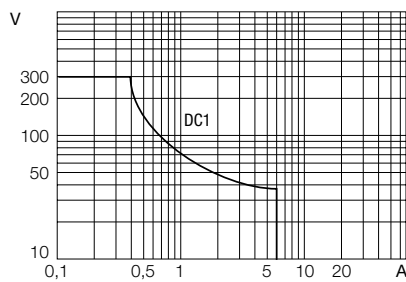
You can also set the output mode separately for each channel.

The Pwr LED lights green to indicate operational readiness. The 2-color LED 1 lights yellow to indicate the switching

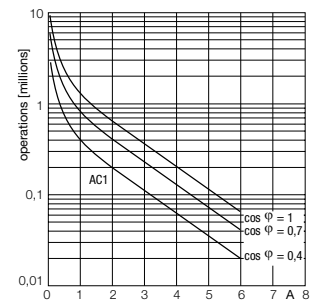
status of the associated output. In the event of an input circuit error, the associated 2-color LED turns red, provided the input circuit monitoring function is activated. Thereupon the output and the alarm relay drop out.



Output relay – Load curve



Output relay – Electrical lifetime



Technical data

Type	IM1-451EX-R
Ident no.	7541188

Power supply

Nominal voltage	Universal voltage supply unit
Operating voltage range	20...125 VDC
Operating voltage range	20...250 VAC
Frequency	40...70 Hz
Power consumption	≤ 3 W

Inputs

No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold:	1.55 mA
Switch-off threshold:	1.75 mA
Short-circuit threshold	≥ 6 mA
Wire breakage threshold	≤ 0.1 mA

Outputs

Output circuits (digital)	5 x relays (NO)
Switching frequency	≤ 10 Hz
Relay switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 750 VA/60 W
Contact quality	AgNi, 3μ Au

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 04 ATEX 2604
Device designation	Ⓔ II (1) G, II (1) D [Ex ia Ga] IIC ; [Ex ia Da] IIIC
Max. values:	Terminal connection: 1+2 / 4...7 / 9+10
Max. output voltage U_o	≤ 11.3 V
Max. output current I_o	≤ 13 mA
Max. output power P_o	≤ 36 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 100 \mu\text{H}$, $C_i = 1.1 \text{ nF}$

External inductance/capacitance L_o/C_o

Ex ia	IIC			IIB		
L_o [mH]	1.0	5.0	10	2.0	10.0	20.0
C_o [μF]	0.84	0.62	0.55	4.0	2.8	2.5

Application area	II 3 G
Protection type	Ex nA nC [ic Gc] IIC T4
Max. values:	Terminal connection: 1+2 / 4...7 / 9+10
Max. output voltage U_o	≤ 11.3 V
Max. output current I_o	≤ 13 mA

Max. output power P_o	≤ 36 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 100 \mu\text{H}$; $C_i = 1.1 \text{ nF}$

External inductance/capacitance L_o/C_o

Ex ic	IIC			IIC		
L_o [mH]	10	5.0	1	20	10.0	2
C_o [μF]	0.91	1.0	1.5	4.3	4.9	6.8

Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Relative humidity	≤ 95 %
Test voltage	2.5 kV

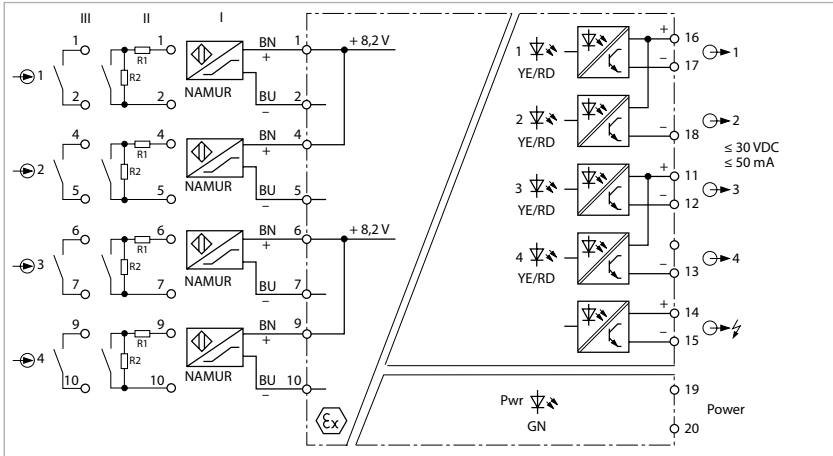
Mechanical data

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 ² / 2 x 1.5 mm ²
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

Approval | Certification

ATEX, IECEx, UL, c FM_{us}, CSA, TR CU, INMETRO, TIS

Isolating switching amplifier, 4-channel



Features

- ATEX, IECEx, UL, cFM_{US}, CSA, TR CU, INMETRO, TIIS
- Installation in zone 2
- 5 transistor outputs, short-circuit proof, potential-free and reverse-polarity protected
- Output mode adjustable (NO/NC mode)
- Input circuits monitored for wire-break/short-circuit (ON/OFF switchable)
- Common alarm output
- Complete galvanic isolation

The 4-channel isolating switching amplifier IM1-451EX-T is equipped with intrinsically safe input circuits.

Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact transmitters can be connected to the device.

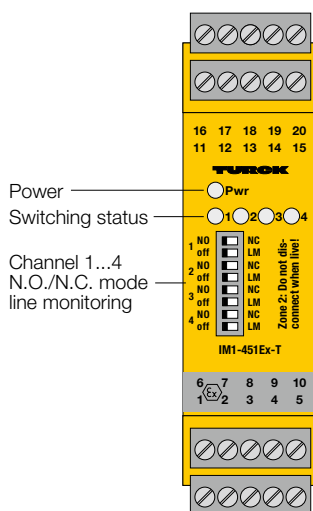
The output circuits each feature a potential-free and short-circuit proof transistor and the device also has a common alarm output.

Six front panel switches are available to set the output mode separately for each channel (NO/NC mode), as well as to enable/disable wire-break (WB) and short-circuit (SC) monitoring separately.

You can also set the output mode separately for each channel.

The Pwr LED lights green to indicate operational readiness. The 2-color LED 1 lights yellow to indicate the switching status of the associated output. In the

event of an input circuit error, the associated 2-color LED turns red, provided the input circuit monitoring function is activated. Thereupon the output and the alarm transistor are blocked.



Technical data

Type	IM1-451EX-T
Ident no.	7541189

Power supply

Nominal voltage	Universal voltage supply unit
Operating voltage range	20...125 VDC
Operating voltage range	20...250 VAC
Frequency	40...70 Hz
Power consumption	≤ 3 W

Inputs

No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold:	1.55 mA
Switch-off threshold:	1.75 mA
Short-circuit threshold	≥ 6 mA
Wire breakage threshold	≤ 0.1 mA

Outputs

Output circuits (digital)	5 x transistor (potential-free, short-circuit proof)
Switching voltage	≤ 30 VDC
Switching current per output	≤ 50 mA
Switching frequency	≤ 5000 Hz
Voltage drop	≤ 2.5 V

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 04 ATEX 2604
Device designation	Ⓔ II (1) G, II (1) D [Ex ia Ga] IIC ; [Ex ia Da] IIIC
Max. values:	Terminal connection: 1+2 / 4...7 / 9+10
Max. output voltage U_o	≤ 11.3 V
Max. output current I_o	≤ 13 mA
Max. output power P_o	≤ 36 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 100 \mu\text{H}$, $C_i = 1.1 \text{ nF}$

External inductance/capacitance L_o/C_o

Ex ia	IIC			IIB		
L_o [mH]	1.0	5.0	10	2.0	10.0	20.0
C_o [μF]	0.84	0.62	0.55	4.0	2.8	2.5

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552967 X
Application area	II 3 G
Protection type	Ex nA [ic Gc] IIC T4
Max. values:	Terminal connection: 1+2 / 4...7 / 9+10
Max. output voltage U_o	≤ 11.3 V
Max. output current I_o	≤ 13 mA
Max. output power P_o	≤ 36 mW
Characteristic	linear

External inductance/capacitance L_o/C_o

Ex ic	IIC			IIB		
L_o [mH]	10	5.0	1	20	10.0	2
C_o [μF]	0.91	1.0	1.5	4.3	4.9	6.8

Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Relative humidity	≤ 95 %
Test voltage	2.5 kV

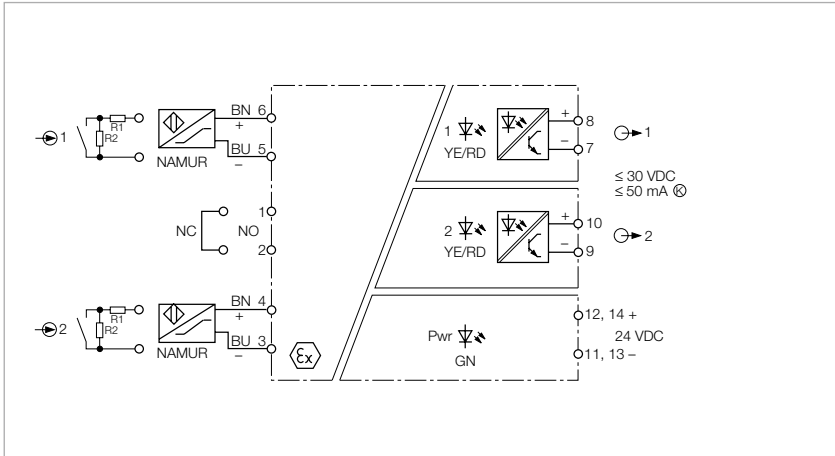
Mechanical data

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 ² / 2 x 1.5 mm ²
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

Approval | Certification

ATEX, IECEx, UL, cFM_{us} , CSA, TR CU, INMETRO, TIIS

Isolating switching amplifier, 2-channel



Features

- ATEX, IECEx, TR CU, NEPSI
- Installation in zone 2
- Isolating switching amplifier, 2-channel
- Transistor outputs
- Input circuit monitoring of wire-break/short-circuit
- Galvanic isolation of input circuits, output circuits and supply voltage

The 2-channel isolating switching amplifier IME-DI-22EX-T/24VDC is equipped with intrinsically safe input circuits. Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact transmitters can be connected to the device.

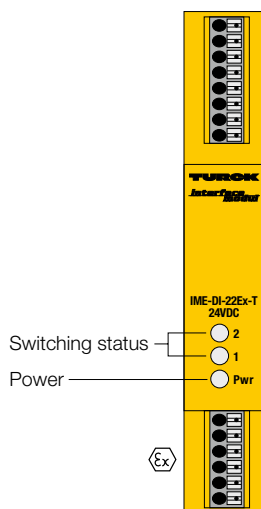
The output circuits each feature a potential-free transistor output. You can toggle between working or closed current, resp. NO or NC mode via a wire jumper.

When using mechanical contacts, the contacts must be wired with resistors (II) because of wire-break and short-circuit monitoring (see circuit diagram). For this, use the resistor module WM1, ident no. 0912101.

The Pwr LED lights green to indicate operational readiness.

The 2-color LEDs 1 and 2 light yellow to indicate the switching status of the asso-

ciated output. In the event of an input circuit error, the 2-color LED associated to the affected input turns red. Thereupon the associated output transistor is blocked.



Technical data

Type	IME-DI-22EX-T/24VDC
Ident no.	7541197

Power supply

Nominal voltage	24 VDC
Operating voltage range	20...30 VDC
Power consumption	≤ 1.5 W

Inputs

No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold:	1.55 mA
Switch-off threshold:	1.75 mA
Short-circuit threshold	≥ 6 mA
Wire breakage threshold	≤ 0.1 mA

Outputs

Output circuits (digital)	2 x transistor (potential-free, short-circuit proof)
Switching voltage	≤ 30 VDC
Switching current per output	≤ 100 mA
Switching frequency	≤ 3000 Hz
Voltage drop	≤ 2.5 V

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 07 ATEX 553234
Device designation	⊕ II (1) GD [Ex ia] IIC/IIB
Max. values:	Terminal connection: 3+4 / 5+6
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 10 mA
Max. output power P_o	≤ 24 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 150 \mu\text{H}$, $C_i = \text{negligibly small}$

External inductance/capacitance L_o/C_o

Ex ia	IIC	IIB		
L_o [mH]	10	0.85	20	1.85
C_o [μF]	0.75	1.1	3.4	5.3

Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 10 mA
Max. output power P_o	≤ 24 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 150 \mu\text{H}$, $C_i = \text{negligibly small}$

External inductance/capacitance L_o/C_o

Ex nL	IIC	IIB		
L_o [mH]	5	0.85	10	0.85
C_o [μF]	1.4	1.9	6.6	11

Ex approval acc. to conformity certificate	TÜV 07 ATEX 554299 X
Application area	II 3 G
Protection type	Ex nA nC [nL] IIC/IIB T4
Max. values:	Terminal connection: 3+4 / 5+6
Max. output voltage U_o	≤ 9.6 V

Max. output current I_o	≤ 10 mA
Max. output power P_o	≤ 24 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 150 \mu\text{H}$, $C_i = \text{negligibly small}$

External inductance/capacitance L_o/C_o

Ex nL	IIC	IIB		
L_o [mH]	5	0.85	10	0.85
C_o [μF]	1.4	1.9	6.6	11

Declaration	SIL 2 acc. to EXIDA FMEDA
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Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Test voltage	2.5 kV
MTTF	407 years acc. to SN 29500 (Ed. 99) 40 °C

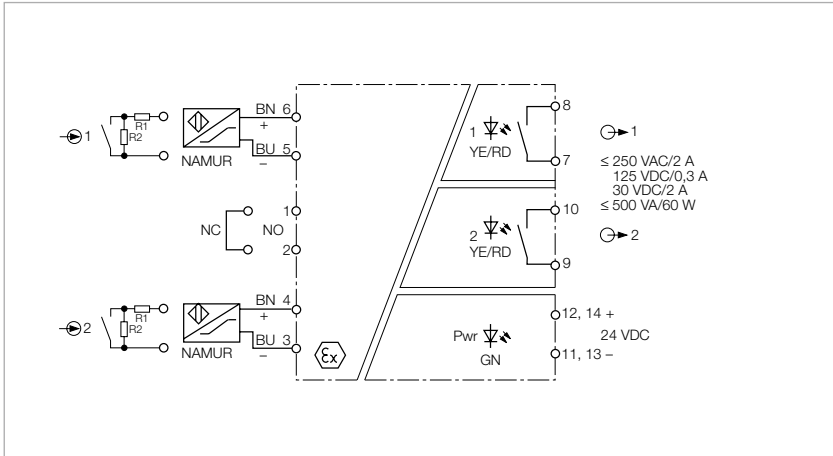
Mechanical data

Electrical connection	Spring terminal made of Beryllium-Bronze
Terminal cross-section	1.5 mm ²
Housing material	Polycarbonate/ABS
Mounting instruction	for DIN rail
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	18 x 112 x 110 mm

Approval | Certification

ATEX, IECEx, TR CU, NEPSI

Isolating switching amplifier, 2-channel



Features

- ATEX, IECEx, TR CU, NEPSI
- Installation in zone 2
- Isolating switching amplifier, 2-channel
- Relay output
- Input circuit monitoring of wire-break/short-circuit
- Galvanic isolation of input circuits, output circuits and supply voltage

The 2-channel isolating switching amplifier IME-DI-22EX-R/24VDC is equipped with intrinsically safe input circuits. Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact transmitters can be connected to the device.

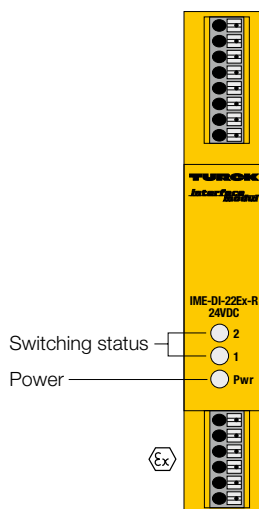
The output circuits each feature a relay with NO contact. You can toggle between working or closed current, resp.

NO or NC mode for both channels via a wire jumper.

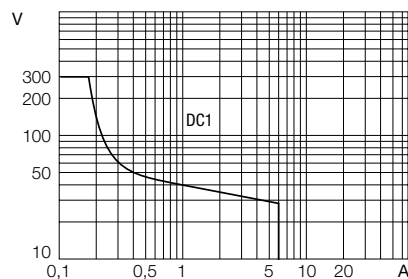
When using mechanical contacts, the contacts must be wired with resistors (II) because of wire-break and short-circuit monitoring (see circuit diagram). For this, use the resistor module WM1, ident no. 092101.

The Pwr LED lights green to indicate operational readiness.

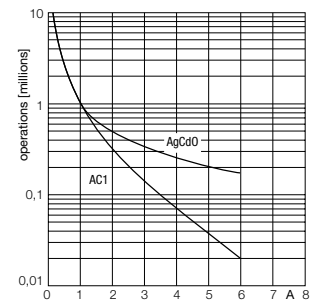
The 2-color LEDs 1 and 2 light yellow to indicate the switching status of the associated output. In the event of an input circuit error, the 2-color LED associated to the affected input turns red, provided the input circuit monitoring function is activated. Thereupon the output relay drops out.



Output relay – Load curve



Output relay – Electrical lifetime



Technical data

Type	IME-DI-22Ex-R/24VDC
Ident no.	7541191

Power supply

Nominal voltage	24 VDC
Operating voltage range	20...30 VDC
Power consumption	≤ 1.7 W

Inputs

No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold:	1.55 mA
Switch-off threshold:	1.75 mA
Short-circuit threshold	≥ 6 mA
Wire breakage threshold	≤ 0.1 mA

Outputs

Output circuits (digital)	2 x relays (NO)
Switching frequency	≤ 10 Hz
Relay switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 500 VA/60 W
Contact quality	AgNi, 3μ Au

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 07 ATEX 553234
Device designation	⊕ II (1) GD [Ex ia] IIC/IIB
Max. values:	Terminal connection: 3+4 / 5+6
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 10 mA
Max. output power P_o	≤ 24 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 150 \mu\text{H}$, $C_i = \text{negligibly small}$

External inductance/capacitance L_o/C_o

Ex ia	IIC	IIB		
L_o [mH]	10	0.85	20	1.85
C_o [μF]	0.75	1.1	3.4	5.3

Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 10 mA
Max. output power P_o	≤ 24 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 150 \mu\text{H}$, $C_i = \text{negligibly small}$

External inductance/capacitance L_o/C_o

Ex nL	IIC	IIB		
L_o [mH]	5	0.85	10	0.85
C_o [μF]	1.4	1.9	6.6	11

Ex approval acc. to conformity certificate	TÜV 07 ATEX 554299 X
Application area	II 3 G
Protection type	Ex nA nC [nL] IIC/IIB T4
Max. values:	Terminal connection: 3+4 / 5+6

Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 10 mA
Max. output power P_o	≤ 24 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 150 \mu\text{H}$, $C_i = \text{negligibly small}$

External inductance/capacitance L_o/C_o

Ex nL	IIC	IIB		
L_o [mH]	5	0.85	10	0.85
C_o [μF]	1.4	1.9	6.6	11

Declaration	SIL 2 acc. to EXIDA FMEDA
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Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

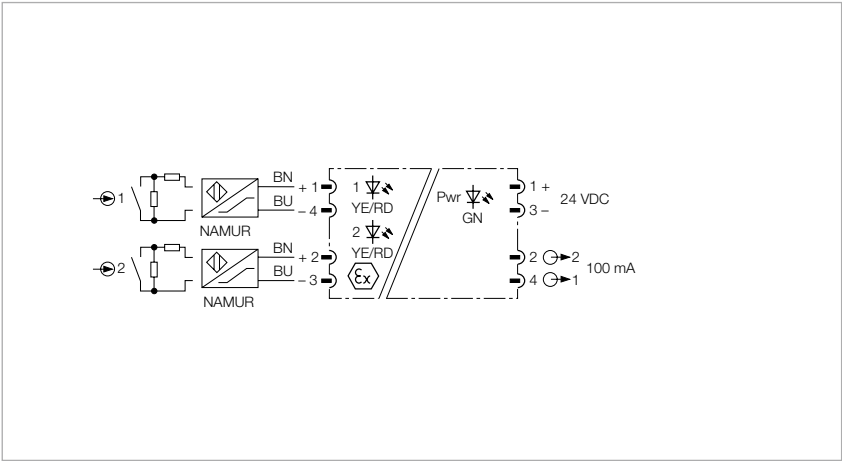
Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Test voltage	2.5 kV
MTTF	235 years acc. to SN 29500 (Ed. 99) 40 °C

Mechanical data

Electrical connection	Spring terminal made of Beryllium-Bronze
Terminal cross-section	1.5 mm ²
Housing material	Polycarbonate/ABS
Mounting instruction	for DIN rail
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	18 x 112 x 110 mm

Approval Certification	ATEX, IECEx, TR CU, NEPSI
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Isolating switching amplifier, 2-channel



Features

- ATEX, IECEx, TR CU
- Installation in zone 2/22
- Isolating switching amplifier with M12 x 1 connectors, 2-channel
- Line monitored for wire-break/short-circuit (ON/OFF switchable)
- PNP transistor output NO
- Complete galvanic isolation
- Protection class IP67

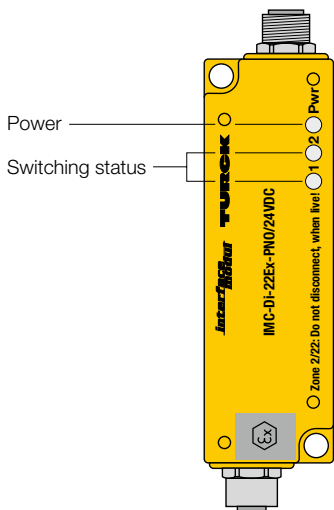
The 2-channel isolating switching amplifier IMC-Di-22Ex-PNO/24VDC is equipped with intrinsically safe input circuits.

Sensors according to EN 60947-5-6 (NAMUR), variable resistors or potential free

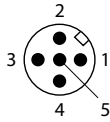
contactors can be connected to the device.

The output circuits feature two NO transistors. A green LED indicates operational readiness.

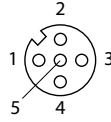
The device must be protected against mechanical load on connector and housing when mounted in zone 2 or 22. For this, use the TURCK cover plate IMC-SG (ident no. 7560016).



Pin assignment male M12



Pin assignment female M12 (intrinsically safe end)



Technical data

Type	IMC-Di-22Ex-PNO/24VDC
Ident no.	7560003

Power supply

Nominal voltage	24 VDC
Operating voltage range	20...30 VDC

Inputs

No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold:	1.55 mA
Switch-off threshold:	1.75 mA

Outputs

Output circuits (digital)	2 x transistors (pnp, short-circuit proof)
Switching voltage	≤ 30 VDC
Switching current per output	≤ 50 mA
Switching frequency	≤ 3000 Hz

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 07 ATEX 553447
Device designation	⊕ II (1) GD [Ex ia] IIC/IIB
Max. values:	M12 female connection: 1+4 / 1+3
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 10 mA
Max. output power P_o	≤ 24 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 0.15$ mH, $C_i =$ negligibly small

External inductance/capacitance L_o/C_o

Ex ia	IIC		IIB	
L_o [mH]	0.85	10	1.85	20
C_o [nF]	1100	750	5300	3400

Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 10 mA
Max. output power P_o	≤ 24 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 0.15$ mH, $C_i =$ negligibly small

External inductance/capacitance L_o/C_o

Ex nL	IIC		IIB	
L_o [mH]	5.0	0.85	10	0.85
C_o [nF]	1400	1900	6600	11000

Ex approval acc. to conformity certificate	TÜV 07 ATEX 554027 X
Application area	II 3 GD
Protection type	Ex nA [nL] IIC/IIB T4 or rather Ex tD A22 IP67 T96 °C

Max. values:	M12 female connection: 1+4 / 2+3
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 10 mA
Max. output power P_o	≤ 24 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 0.15$ mH, $C_i =$ negligibly small

External inductance/capacitance L_o/C_o

Ex nL	IIC		IIB	
L_o [mH]	5.0	0.85	10	0.85
C_o [nF]	1400	1900	6600	11000

Ex approval acc. to conformity certificate	TÜV 07 ATEX 554027 X
Approval	SIL2 acc. to EXIDA FMEDA

Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

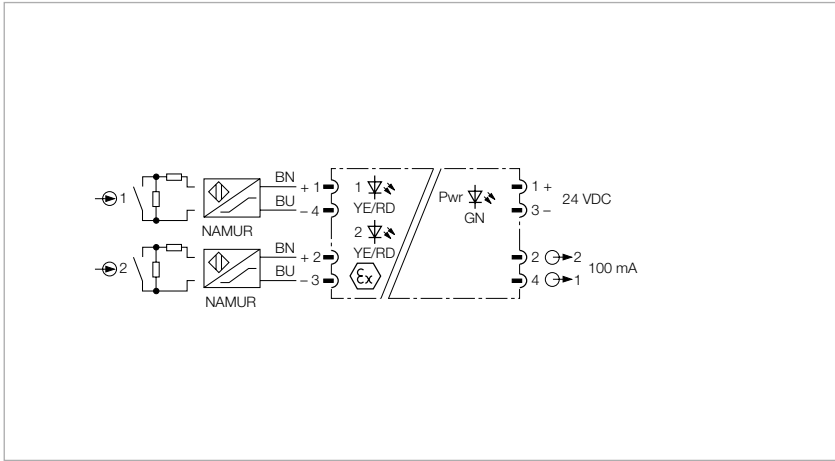
Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Test voltage	2.5 kV
MTTF	295 years acc. to SN 29500 (Ed. 99) 40 °C

Mechanical data

Tightening torque	3.5 Nm
Electrical connection	M12 flange connection
Housing material	Polycarbonate/ABS
Mounting instruction	for panel
Protection class	IP67
Dimensions	32 x 100 x 25 mm

Approval Certification	ATEX, IECEx, TR CU
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Isolating switching amplifier, 2-channel



Features

- ATEX, IECEx, TR CU
- Installation in zone 2/22
- Isolating switching amplifier with M12 x 1 connectors, 2-channel
- Line monitored for wire-break/short-circuit (ON/OFF switchable)
- PNP transistor output, NC
- Complete galvanic isolation
- Protection class IP67

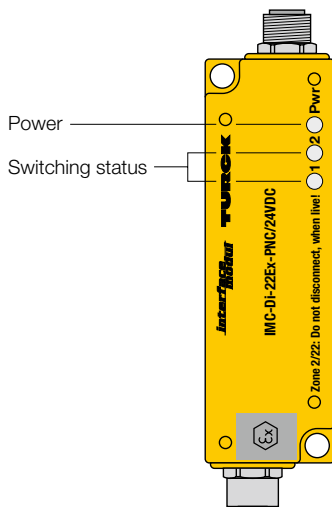
The 2-channel isolating switching amplifier IMC-DI-22EX-PNC/24VDC is equipped with intrinsically safe input circuits.

Sensors according to EN 60947-5-6 (NAMUR), variable resistors or potential free

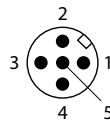
contactors can be connected to the device.

The output circuits feature two NO transistors. A green LED indicates operational readiness.

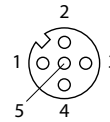
The device must be protected against mechanical load on connector and housing when mounted in zone 2 or 22. For this, use the TURCK cover plate IMC-SG (ident no. 7560016).



Pin assignment male M12



Pin assignment female M12 (intrinsically safe end)



Technical data

Type	IMC-DI-22EX-PNC/24VDC
Ident no.	7560010

Power supply

Nominal voltage	24 VDC
Operating voltage range	20...30 VDC

Inputs

No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold:	1.55 mA
Switch-off threshold:	1.75 mA

Outputs

Output circuits (digital)	2 x transistors (pnp, short-circuit proof)
Switching voltage	≤ 30 VDC
Switching current per output	≤ 50 mA
Switching frequency	≤ 3000 Hz

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 07 ATEX 553447
Device designation	⊕ II (1) GD [Ex ia] IIC/IIB
Max. values:	M12 female connection: 1+4 / 2+3
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 10 mA
Max. output power P_o	≤ 24 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 0.15$ mH, $C_i =$ negligibly small

External inductance/capacitance L_o/C_o

Ex ia	IIC		IIB	
L_o [mH]	0.85	10	1.85	20
C_o [nF]	1100	750	5300	3400

Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 10 mA
Max. output power P_o	≤ 24 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 0.15$ mH, $C_i =$ negligibly small

External inductance/capacitance L_o/C_o

Ex nL	IIC		IIB	
L_o [mH]	5.0	0.85	10	0.85
C_o [nF]	1400	1900	6600	11000

Ex approval acc. to conformity certificate	TÜV 07 ATEX 554027 X
Application area	II 3 GD
Protection type	Ex nA [nL] IIC/IIB T4 or rather Ex tD A22 IP67 T96 °C

Max. values:	M12 female connection: 1+4 / 2+3
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 10 mA
Max. output power P_o	≤ 24 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	$L_i = 0.15$ mH, $C_i =$ negligibly small

External inductance/capacitance L_o/C_o

Ex nL	IIC		IIB	
L_o [mH]	5.0	0.85	10	0.85
C_o [nF]	1400	1900	6600	11000

Ex approval acc. to conformity certificate	TÜV 07 ATEX 554027 X
Approval	SIL2 acc. to EXIDA FMEDA

Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Test voltage	2.5 kV
MTTF	295 years acc. to SN 29500 (Ed. 99) 40 °C

Mechanical data

Tightening torque	3.5 Nm
Electrical connection	M12 flange connection
Housing material	Polycarbonate/ABS
Mounting instruction	for panel
Protection class	IP67
Dimensions	32 x 100 x 25 mm

Approval Certification	ATEX, IECEx, TR CU
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