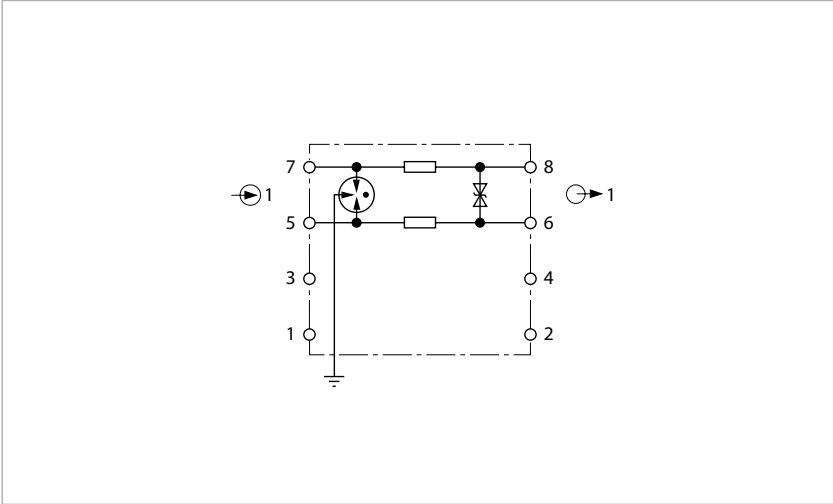


## Surge protection – 1 floating signal circuit



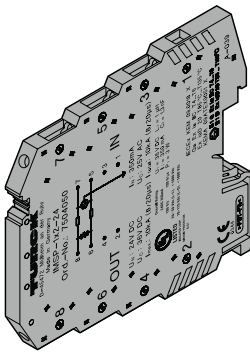
### Features

- ATEX, IECEx, UL
- Nominal voltage 24 VDC
- For one floating 2-wire signal circuit
- IEC category: C1 / C2 / C3 / D1
- Flammability class V-0
- HART® transmissible

The IMSP-1X2-24 is a surge protection module, designed for the MSR technology. It protects one floating 2-wire signal circuit.

The HART® transmissible devices are IP20 rated and can be installed in Ex as well as non-Ex areas.

The only 6.2 mm slim housing can be mounted on DIN rail acc. to DIN NS35.



## Technical data

<b>Type</b>	IMSP-1x2-24
Ident no.	7504050
<b>Nominal voltage <math>U_n</math></b>	24 VDC
IEC category	C1; C2; C3; D1
Surge arrester, rated voltage $U_c$	25 VAC / 36 VDC
<b>Nominal current <math>I_n</math> (<math>\leq 40^\circ\text{C}</math>)</b>	350 mA
Active current $I_c$ with given $U_c$	2 $\mu\text{A}$
Leakage current acc. to PE with given $U_c$	2 $\mu\text{A}$
Nominal discharge surge current $I_n$ (8/20) $\mu\text{s}$ (core-core)	5 kA
Nominal discharge surge current $I_n$ (8/20) $\mu\text{s}$ (core-ground)	5 kA
Total surge current (8/20) $\mu\text{s}$	20 kA
Total surge current (10/350) $\mu\text{s}$	1 kA
Discharge surge current $I_{\text{max}}$ (8/20) $\mu\text{s}$ (core-to-core)	10 kA
Discharge surge current $I_{\text{max}}$ (8/20) $\mu\text{s}$ (core-to-earth)	10 kA
Nominal pulse current $I_{\text{an}}$ (10/1000) $\mu\text{s}$ (core-core)	50 A
Nominal pulse current $I_{\text{an}}$ (10/1000) $\mu\text{s}$ (core-ground)	50 A
Lightning test current (10/350) $\mu\text{s}$ , peak current $I_{\text{imp}}$	500 A
<b>Output voltage limitation 1kV/<math>\mu\text{s}</math> (core-to-core)</b>	$\leq 60\text{ V}$
Output voltage limitation 1kV/ $\mu\text{s}$ (core-to-earth)	$\leq 650\text{ V}$
Residual voltage $I_n$ (core-to-core)	$\leq 70\text{ V}$
Residual voltage $I_{\text{an}}$ (core-to-core)	$\leq 50\text{ V}$
Protection level $U_p$ C2 - 10 kV/5 kA (core-core)	$\leq 70\text{ V}$ (C2 - 10 kV / 5 kA)
Protection level $U_p$ C3 - 10 A (core-core)	$\leq 50\text{ V}$ (C3 - 10 A)
Protection level $U_p$ D1 - 500 A (core-core)	$\leq 80\text{ V}$ (D1 - 500 A)
Protection level $U_p$ C1 - 500 V/250 A (core-ground)	$\leq 650\text{ V}$ (C1 - 500 V / 250 A)
Protection level $U_p$ C2 - 10 kV/5 kA (core-ground)	$\leq 700\text{ V}$ (C2 - 10kV / 5 kA)
Protection level $U_p$ D1 - 500 A (core-ground)	$\leq 700\text{ V}$ (D1 - 500 A)
<b>Response time <math>t_A</math> (core-to-core)</b>	$\leq 1\text{ ns}$
Response time $t_A$ (core-to-earth)	$\leq 100\text{ ns}$
Insertion loss aE, sym.	Typ. 0.7 dB (1 MHz / 50 $\Omega$ )
Insertion loss aE, asym.	Typ. 0.3 dB (350 MHz / 150 $\Omega$ )
Cutoff frequency $f_g$ (3dB), asym. (GND) 50 $\Omega$ system	Typ. 6 MHz
Cutoff frequency $f_g$ (3dB), asym. (GND) 150 $\Omega$ system	Typ. 2 MHz
Capacitance	$\leq 1.3\text{ nF}$ (per path)
Resistance per path	3.3 $\Omega$ 20 %
Required backup fuse, max.	315 mA
Surge protection acc. to IEC 61643-21 (core-to-core)	C2 (10 kV / 5 kA); C3 (25 A)
Surge protection acc. to IEC 61643-21 (core-to-earth)	C2 (10 kV / 5 kA); C3 (25 A); D1 (500 A)
AC protection acc. to IEC 61643-21	5 A - 1 s
<b>Standards for air and creepage distances</b>	IEC 60664-1 / EN 60079-11
Standards/Regulations	IEC 61643-21 / DIN EN 61643-21

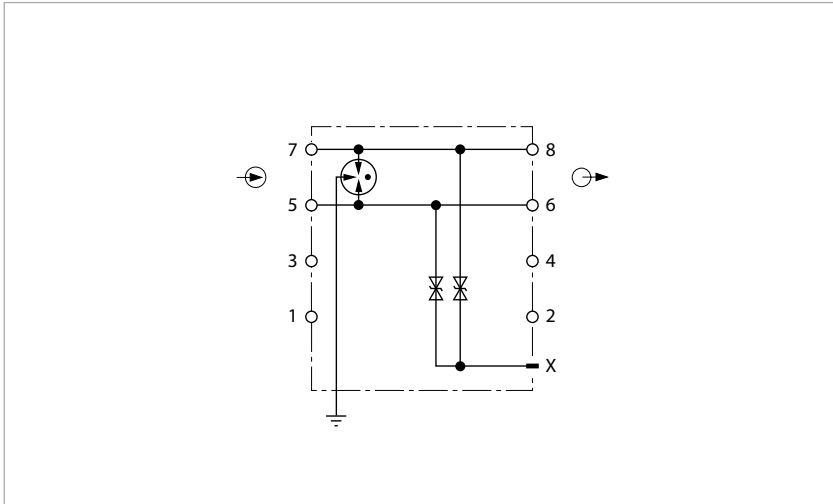
<b>Approvals and declarations</b>	
Ex approval acc. to conformity certificate	DEKRA 11 ATEX 0016 X
Device designation	Ⓔ II 1 G, II 1 D Ex ia IIC T4...T6; Ex iaD 20 T85°C...T135°C
Max. values:	Terminal connection: 5+7 / 6+8
Max. input voltage $U_i$	$\leq 36\text{ V}$
Max. input current $I_i$	$\leq 350\text{ mA}$
Max. input power $P_i$	$\leq 3000\text{ mW}$
Internal inductance/capacitance $L_i/C_i$	$L_i = 1\ \mu\text{H}; C_i = 1.3\text{ nF}$
Declaration	SIL 2 acc. to EXIDA FMEDA

<b>Environmental Conditions</b>	
Ambient temperature	-40...+80 $^\circ\text{C}$
Storage temperature	-40...+80 $^\circ\text{C}$

<b>Mechanical data</b>	
Tightening torque	0.8 Nm
Electrical connection	screw terminals
Terminal cross-section	2.5 mm <sup>2</sup>
Housing material	plastic
Mounting instruction	for DIN rail
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	6.2 x 93.1 x 102.5 mm

<b>Approval   Certification</b>	ATEX, IECEx, UL
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## Surge protection – 2 floating signal wires



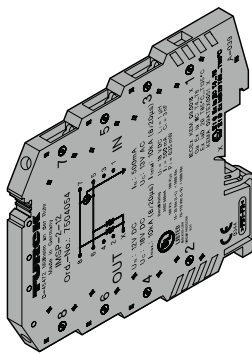
### Features

- ATEX, IECEx, UL
- Nominal voltage 12 VDC
- For 2 floating signal conductors
- IEC category: C1 / C2 / C3 / D1
- Flammability class V-0

The IMSP-2-12 is a surge protection module, designed for the MSR technology. It protects two 12 V operated floating signal conductors.

The devices are IP20 protected and can be installed in Ex as well as non-Ex areas.

The only 6.2 mm slim housing can be mounted on DIN rail acc. to DIN NS35.



## Technical data

<b>Type</b>	IMSP-2-12
Ident no.	7504054
<b>Nominal voltage <math>U_n</math></b>	12 VDC
IEC category	C1; C2; C3; D1
Surge arrester, rated voltage $U_c$	13 VAC / 18 VDC
<b>Nominal current <math>I_n</math> (<math>\leq 40^\circ\text{C}</math>)</b>	500 mA
Active current $I_c$ with given $U_c$	2 $\mu\text{A}$ (per path)
Leakage current acc. to PE with given $U_c$	2 $\mu\text{A}$
Nominal discharge surge current $I_n$ (8/20) $\mu\text{s}$ (core-core)	350 A
Nominal discharge surge current $I_n$ (8/20) $\mu\text{s}$ (core-ground)	5 kA
Total surge current (8/20) $\mu\text{s}$	20 kA
Total surge current (10/350) $\mu\text{s}$	1 kA
Discharge surge current $I_{\text{max}}$ (8/20) $\mu\text{s}$ (core-to-core)	350 A
Discharge surge current $I_{\text{max}}$ (8/20) $\mu\text{s}$ (core-to-earth)	10 kA
Nominal pulse current $I_{\text{an}}$ (10/1000) $\mu\text{s}$ (core-core)	70 A
Nominal pulse current $I_{\text{an}}$ (10/1000) $\mu\text{s}$ (core-ground)	50 A
Lightning test current (10/350) $\mu\text{s}$ , peak current $I_{\text{imp}}$	500 A
<b>Output voltage limitation 1kV/<math>\mu\text{s}</math> (core-to-core)</b>	$\leq 50\text{ V}$
Output voltage limitation 1kV/ $\mu\text{s}$ (core-to-earth)	$\leq 650\text{ V}$
Residual voltage $I_n$ (core-to-core)	$\leq 50\text{ V}$
Residual voltage $I_{\text{an}}$ (core-to-core)	$\leq 50\text{ V}$
Protection level $U_p$ C1 - 500 V/250 A (core-core)	$\leq 50\text{ V}$ (C1-500 V / 250 A)
Protection level $U_p$ C1 - 500 V/250 A (core-ground)	$\leq 650\text{ V}$ (C1 - 500 V / 250 A)
Protection level $U_p$ C2 - 10 kV/5 kA (core-ground)	$\leq 650\text{ V}$ (C2 - 10 kV / 5 kA)
Protection level $U_p$ D1 - 500 A (core-ground)	$\leq 700\text{ V}$ (D1 - 500 A)
<b>Response time <math>t_A</math> (core-to-core)</b>	$\leq 1\text{ ns}$
Response time $t_A$ (core-to-earth)	$\leq 100\text{ ns}$
Insertion loss aE, sym.	Typ. 0.1 dB (1 MHz / 50 $\Omega$ )
Insertion loss aE, asym.	Typ. 0.1 dB (300 kHz / 150 $\Omega$ )
Cutoff frequency $f_g$ (3dB), asym. (GND) 50 $\Omega$ system	Typ. 5 MHz
Cutoff frequency $f_g$ (3dB), asym. (GND) 150 $\Omega$ system	Typ. 1.5 MHz
Capacitance	$\leq 1.5\text{ nF}$ (per channel)
Resistance per path	0 $\Omega$
Required backup fuse, max.	500 mA
Surge protection acc. to IEC 61643-21 (core-to-core)	C1 (500 V / 250 A); C3 (25 A)
Surge protection acc. to IEC 61643-21 (core-to-earth)	C2 (10 kV / 5 kA); C3 (25 A); D1 (500 A)
AC protection acc. to IEC 61643-21	5 A - 1 s
<b>Standards for air and creepage distances</b>	IEC 60664-1 / EN 60079-11
Standards/Regulations	IEC 61643-21 / DIN EN 61643-21

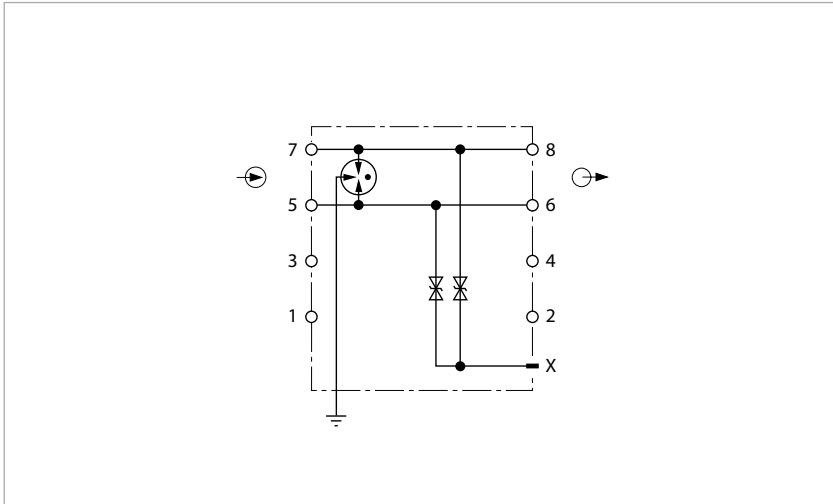
<b>Approvals and declarations</b>	
Ex approval acc. to conformity certificate	DEKRA 11 ATEX 0016 X
Device designation	Ⓔ II 1 G, II 1 D Ex ia IIC T4...T6; Ex iaD 20 T85°C...T135°C
Max. values:	Terminal connection: 5+7 / 6+8
Max. input voltage $U_i$	$\leq 18\text{ V}$
Max. input current $I_i$	$\leq 500\text{ mA}$
Max. input power $P_i$	$\leq 635\text{ mW}$
Internal inductance/capacitance $L_i/C_i$	$L_i = 1\ \mu\text{H}; C_i = 3\ \text{nF}$
Declaration	SIL 2 acc. to EXIDA FMEDA

<b>Environmental Conditions</b>	
Ambient temperature	-40...+80 $^\circ\text{C}$
Storage temperature	-40...+80 $^\circ\text{C}$

<b>Mechanical data</b>	
Tightening torque	0.8 Nm
Electrical connection	screw terminals
Terminal cross-section	2.5 mm <sup>2</sup>
Housing material	plastic
Mounting instruction	for DIN rail
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	6.2 x 93.1 x 102.5 mm

<b>Approval   Certification</b>	ATEX, IECEx, UL
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## Surge protection – 2 floating signal wires



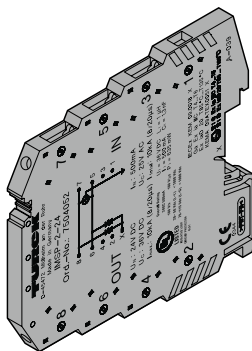
### Features

- ATEX, IECEx, UL
- Nominal voltage 24 VDC
- For 2 floating signal conductors
- IEC category: C1 / C2 / C3 / D1
- Flammability class V-0

The IMSP-2-24 is a surge protection module, designed for the MSR technology. It protects two 24 V operated floating signal conductors.

The devices are IP20 protected and can be installed in Ex as well as non-Ex areas.

The only 6.2 mm slim housing can be mounted on DIN rail acc. to DIN NS35.



## Technical data

<b>Type</b>	IMSP-2-24
Ident no.	7504052
<b>Nominal voltage <math>U_n</math></b>	24 VDC
IEC category	C1; C2; C3; D1
Surge arrester, rated voltage $U_c$	25 VAC / 36 VDC
<b>Nominal current <math>I_n</math> (<math>\leq 40^\circ\text{C}</math>)</b>	500 mA
Active current $I_c$ with given $U_c$	2 $\mu\text{A}$ (per path)
Leakage current acc. to PE with given $U_c$	2 $\mu\text{A}$
Nominal discharge surge current $I_n$ (8/20) $\mu\text{s}$ (core-core)	250 A
Nominal discharge surge current $I_n$ (8/20) $\mu\text{s}$ (core-ground)	5 kA
Total surge current (8/20) $\mu\text{s}$	10 kA
Total surge current (10/350) $\mu\text{s}$	1 kA
Discharge surge current $I_{\text{max}}$ (8/20) $\mu\text{s}$ (core-to-core)	250 A
Discharge surge current $I_{\text{max}}$ (8/20) $\mu\text{s}$ (core-to-earth)	10 kA
Nominal pulse current $I_{\text{an}}$ (10/1000) $\mu\text{s}$ (core-core)	50 A
Nominal pulse current $I_{\text{an}}$ (10/1000) $\mu\text{s}$ (core-ground)	50 A
Lightning test current (10/350) $\mu\text{s}$ , peak current $I_{\text{imp}}$	500 A
<b>Output voltage limitation 1kV/<math>\mu\text{s}</math> (core-to-core)</b>	$\leq 60\text{ V}$
Output voltage limitation 1kV/ $\mu\text{s}$ (core-to-earth)	$\leq 650\text{ V}$
Residual voltage $I_n$ (core-to-core)	$\leq 60\text{ V}$
Residual voltage $I_{\text{an}}$ (core-to-core)	$\leq 60\text{ V}$
Protection level $U_p$ C1 - 500 V/250 A (core-core)	$\leq 60\text{ V}$ (C1 - 500 V / 250 A)
Protection level $U_p$ C3 - 10 A (core-core)	$\leq 60\text{ V}$ (C3 - 10 A)
Protection level $U_p$ C1 - 500 V/250 A (core-ground)	$\leq 650\text{ V}$ (C1 - 500 V / 250 A)
Protection level $U_p$ C2 - 10 kV/5 kA (core-ground)	$\leq 650\text{ V}$ (C2 - 10 kV / 5 kA)
Protection level $U_p$ D1 - 500 A (core-ground)	$\leq 700\text{ V}$ (D1 - 500 A)
<b>Response time <math>t_A</math> (core-to-core)</b>	$\leq 1\text{ ns}$
Response time $t_A$ (core-to-earth)	$\leq 100\text{ ns}$
Insertion loss aE, sym.	Typ. 0.1 dB (1 MHz / 50 $\Omega$ )
Insertion loss aE, asym.	Typ. 0.1 dB (450 kHz / 150 $\Omega$ )
Cutoff frequency $f_g$ (3dB), asym. (GND) 50 $\Omega$ system	Typ. 7.5 MHz
Cutoff frequency $f_g$ (3dB), asym. (GND) 100 $\Omega$ system	Typ. 2.5 MHz
Capacitance	$\leq 1.3\text{ nF}$ (per path)
Resistance per path	0 $\Omega$
Required backup fuse, max.	500 mA
Surge protection acc. to IEC 61643-21 (core-to-core)	C1 (500 V / 250 A); C3 (25 A)
Surge protection acc. to IEC 61643-21 (core-to-earth)	C2 (10 kV / 5 kA); C3 (25 A); D1 (500 A)
AC protection acc. to IEC 61643-21	5 A - 1 s
<b>Standards for air and creepage distances</b>	IEC 60664-1 / EN 60079-11
Standards/Regulations	IEC 61643-21 / DIN EN 61643-21

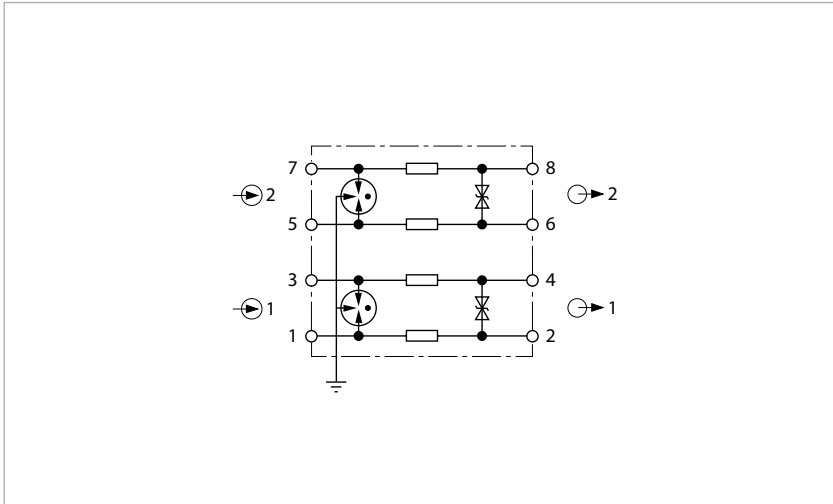
<b>Approvals and declarations</b>	
Ex approval acc. to conformity certificate	DEKRA 11 ATEX 0016 X
Device designation	$\text{Ex}$ II 1 G, II 1 D Ex ia IIC T4...T6; Ex iaD 20 T85°C...T135°C
Max. values:	Terminal connection: 5+7 / 6+8
Max. input voltage $U_i$	$\leq 36\text{ V}$
Max. input current $I_i$	$\leq 500\text{ mA}$
Max. input power $P_i$	$\leq 635\text{ mW}$
Internal inductance/capacitance $L_i/C_i$	$L_i = 1\ \mu\text{H}; C_i = 1.3\text{ nF}$
Declaration	SIL 2 acc. to EXIDA FMEDA

<b>Environmental Conditions</b>	
Ambient temperature	-40...+80 $^\circ\text{C}$
Storage temperature	-40...+80 $^\circ\text{C}$

<b>Mechanical data</b>	
Tightening torque	0.8 Nm
Electrical connection	screw terminals
Terminal cross-section	2.5 mm <sup>2</sup>
Housing material	plastic
Mounting instruction	for DIN rail
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	6.2 x 93.1 x 102.5 mm

<b>Approval   Certification</b>	ATEX, IECEx, UL
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## Surge protection – 2 floating signal circuits



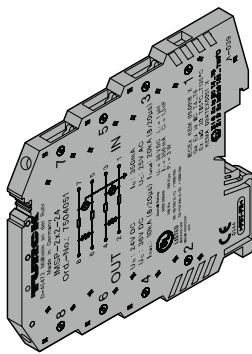
### Features

- ATEX, IECEx, UL
- Nominal voltage 24 VDC
- For two floating 2-wire signal circuits
- IEC category: C1 / C2 / C3 / D1
- Flammability class V-0
- HART® transmissible

The IMSP-2X2-24 is a surge protection module, designed for the MSR technology. It protects two floating 2-wire signal circuits.

The HART® transmissible devices are IP20 rated and can be installed in Ex as well as non-Ex areas.

The only 6.2 mm slim housing can be mounted on DIN rail acc. to DIN NS35.



## Technical data

<b>Type</b>	IMSP-2x2-24
Ident no.	7504051
<b>Nominal voltage <math>U_n</math></b>	24 VDC
IEC category	C1; C2; C3; D1
Surge arrester, rated voltage $U_c$	25 VAC / 36 VDC
<b>Nominal current <math>I_n</math> (<math>\leq 40^\circ\text{C}</math>)</b>	350 mA
Active current $I_c$ with given $U_c$	2 $\mu\text{A}$
Leakage current acc. to PE with given $U_c$	4 $\mu\text{A}$
Nominal discharge surge current $I_n$ (8/20) $\mu\text{s}$ (core-core)	5 kA
Nominal discharge surge current $I_n$ (8/20) $\mu\text{s}$ (core-ground)	5 kA
Total surge current (8/20) $\mu\text{s}$	20 kA
Total surge current (10/350) $\mu\text{s}$	2 kA
Discharge surge current $I_{\text{max}}$ (8/20) $\mu\text{s}$ (core-to-core)	10 kA
Discharge surge current $I_{\text{max}}$ (8/20) $\mu\text{s}$ (core-to-earth)	10 kA
Nominal pulse current $I_{\text{an}}$ (10/1000) $\mu\text{s}$ (core-core)	50 A
Nominal pulse current $I_{\text{an}}$ (10/1000) $\mu\text{s}$ (core-ground)	50 A
Lightning test current (10/350) $\mu\text{s}$ , peak current $I_{\text{imp}}$	500 A
<b>Output voltage limitation 1kV/<math>\mu\text{s}</math> (core-to-core)</b>	$\leq 60\text{ V}$
Output voltage limitation 1kV/ $\mu\text{s}$ (core-to-earth)	$\leq 650\text{ V}$
Residual voltage $I_n$ (core-to-core)	$\leq 70\text{ V}$
Residual voltage $I_{\text{an}}$ (core-to-core)	$\leq 50\text{ V}$
Protection level $U_p$ C2 - 10 kV/5 kA (core-core)	$\leq 70\text{ V}$ (C2 - 10 kV / 5 kA)
Protection level $U_p$ C3 - 10 A (core-core)	$\leq 50\text{ V}$ (C3 - 10 A)
Protection level $U_p$ D1 - 500 A (core-core)	$\leq 80\text{ V}$ (D1 - 500 A)
Protection level $U_p$ C1 - 500 V/250 A (core-ground)	$\leq 650\text{ V}$ (C1 - 500 V / 250 A)
Protection level $U_p$ C2 - 10 kV/5 kA (core-ground)	$\leq 700\text{ V}$ (C2 - 10kV / 5 kA)
Protection level $U_p$ D1 - 500 A (core-ground)	$\leq 700\text{ V}$ (D1 - 500 A)
<b>Response time <math>t_A</math> (core-to-core)</b>	$\leq 1\text{ ns}$
Response time $t_A$ (core-to-earth)	$\leq 100\text{ ns}$
Insertion loss aE, sym.	Typ. 0.7 dB (1 MHz / 50 $\Omega$ )
Insertion loss aE, asym.	Typ. 0.3 dB (350 MHz / 150 $\Omega$ )
Cutoff frequency $f_g$ (3dB), asym. (GND) 50 $\Omega$ system	Typ. 6 MHz
Cutoff frequency $f_g$ (3dB), asym. (GND) 150 $\Omega$ system	Typ. 2 MHz
Capacitance	$\leq 1.3\text{ nF}$ (per path)
Resistance per path	3.3 $\Omega$ 20 %
Required backup fuse, max.	315 mA
Surge protection acc. to IEC 61643-21 (core-to-core)	C2 (10 kV / 5 kA); C3 (25 A)
Surge protection acc. to IEC 61643-21 (core-to-earth)	C2 (10 kV / 5 kA); C3 (25 A); D1 (500 A)
AC protection acc. to IEC 61643-21	5 A - 1 s
<b>Standards for air and creepage distances</b>	IEC 60664-1 / EN 60079-11
Standards/Regulations	IEC 61643-21 / DIN EN 61643-21

<b>Approvals and declarations</b>	
Ex approval acc. to conformity certificate	DEKRA 11 ATEX 0016 X
Device designation	Ⓔ II 1 G, II 1 D Ex ia IIC T4...T6; Ex iaD 20 T85°C...T135°C
Max. values:	Terminal connection: 1...8
Max. input voltage $U_i$	$\leq 36\text{ V}$
Max. input current $I_i$	$\leq 350\text{ mA}$
Max. input power $P_i$	$\leq 3000\text{ mW}$
Internal inductance/capacitance $L_i/C_i$	$L_i = 1\ \mu\text{H}; C_i = 1.3\text{ nF}$
Declaration	SIL 2 acc. to EXIDA FMEDA

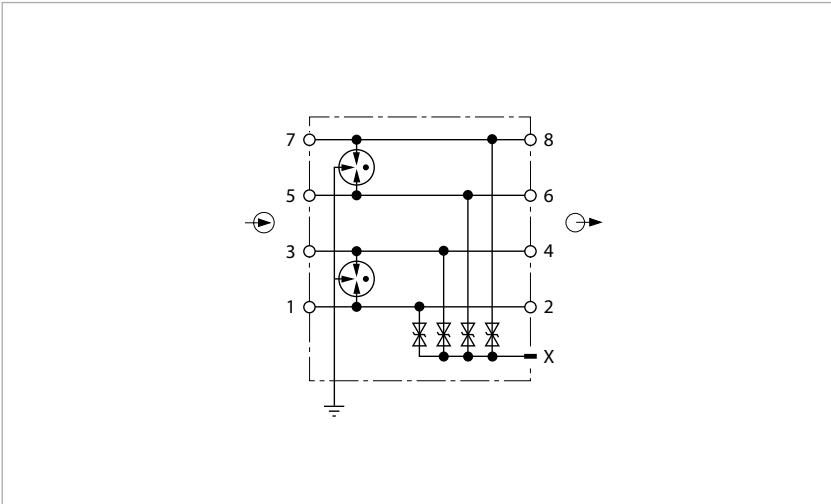
<b>Environmental Conditions</b>	
Ambient temperature	-40...+80 $^\circ\text{C}$
Storage temperature	-40...+80 $^\circ\text{C}$

<b>Mechanical data</b>	
Tightening torque	0.8 Nm
Electrical connection	screw terminals
Terminal cross-section	2.5 mm <sup>2</sup>
Housing material	plastic
Mounting instruction	for DIN rail
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	6.2 x 93.1 x 102.5 mm

<b>Approval   Certification</b>	ATEX, IECEx, UL
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## Surge protection – 4 floating signal wires



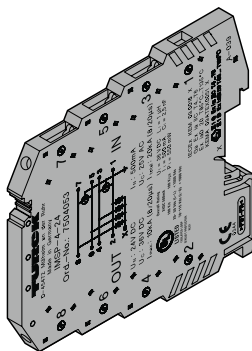
### Features

- ATEX, IECEx, UL
- Nominal voltage 24 VDC
- For 4 floating signal conductors
- IEC category: C1 / C2 / C3 / D1
- Flammability class V-0

The IMSP-4-24 is a surge protection module, designed for the MSR technology. It protects four 24 V operated floating signal conductors.

The devices are IP20 protected and can be installed in Ex as well as non-Ex areas.

The only 6.2 mm slim housing can be mounted on DIN rail acc. to DIN NS35.



## Technical data

<b>Type</b>	IMSP-4-24
Ident no.	7504053
<b>Nominal voltage <math>U_n</math></b>	24 VDC
IEC category	C1; C2; C3; D1
Surge arrester, rated voltage $U_c$	25 VAC / 36 VDC
<b>Nominal current <math>I_n</math> (<math>\leq 40^\circ\text{C}</math>)</b>	500 mA
Active current $I_c$ with given $U_c$	2 $\mu\text{A}$ (per path)
Leakage current acc. to PE with given $U_c$	4 $\mu\text{A}$
Nominal discharge surge current $I_n$ (8/20) $\mu\text{s}$ (core-core)	250 A
Nominal discharge surge current $I_n$ (8/20) $\mu\text{s}$ (core-ground)	5 kA
Total surge current (8/20) $\mu\text{s}$	20 kA
Total surge current (10/350) $\mu\text{s}$	2 kA
Discharge surge current $I_{\text{max}}$ (8/20) $\mu\text{s}$ (core-to-core)	250 A
Discharge surge current $I_{\text{max}}$ (8/20) $\mu\text{s}$ (core-to-earth)	10 kA
Nominal pulse current $I_{\text{an}}$ (10/1000) $\mu\text{s}$ (core-core)	50 A
Nominal pulse current $I_{\text{an}}$ (10/1000) $\mu\text{s}$ (core-ground)	50 A
Lightning test current (10/350) $\mu\text{s}$ , peak current $I_{\text{imp}}$	500 A
<b>Output voltage limitation 1kV/<math>\mu\text{s}</math> (core-to-core)</b>	$\leq 60\text{ V}$
Output voltage limitation 1kV/ $\mu\text{s}$ (core-to-earth)	$\leq 650\text{ V}$
Residual voltage $I_n$ (core-to-core)	$\leq 60\text{ V}$
Residual voltage $I_{\text{an}}$ (core-to-core)	$\leq 60\text{ V}$
Protection level $U_p$ C1 - 500 V/250 A (core-core)	$\leq 60\text{ V}$ (C1 - 500 V / 250 A)
Protection level $U_p$ C3 - 10 A (core-core)	$\leq 60\text{ V}$ (C3 - 10 A)
Protection level $U_p$ C1 - 500 V/250 A (core-ground)	$\leq 650\text{ V}$ (C1 - 500 V / 250 A)
Protection level $U_p$ C2 - 10 kV/5 kA (core-ground)	$\leq 650\text{ V}$ (C2 - 10 kV / 5 kA)
Protection level $U_p$ D1 - 500 A (core-ground)	$\leq 700\text{ V}$ (D1 - 500 A)
<b>Response time <math>t_A</math> (core-to-core)</b>	$\leq 1\text{ ns}$
Response time $t_A$ (core-to-earth)	$\leq 100\text{ ns}$
Insertion loss aE, sym.	Typ 0.1 dB (1 MHz / 50 $\Omega$ )
Insertion loss aE, asym.	Typ. 0.1 dB (450 kHz / 150 $\Omega$ )
Cutoff frequency $f_g$ (3dB), asym. (GND) 50 $\Omega$ system	Typ. 7.5 MHz
Cutoff frequency $f_g$ (3dB), asym. (GND) 100 $\Omega$ system	Typ. 2.5 MHz
Capacitance	$\leq 1.3\text{ nF}$ (per path)
Resistance per path	0 $\Omega$
Required backup fuse, max.	500 mA
Surge protection acc. to IEC 61643-21 (core-to-core)	C1 (500 V / 250 A); C3 (25 A)
Surge protection acc. to IEC 61643-21 (core-to-earth)	C2 (10 kV / 5 kA); C3 (25 A); D1 (500 A)
AC protection acc. to IEC 61643-21	5 A - 1 s
<b>Standards for air and creepage distances</b>	IEC 60664-1 / EN 60079-11
Standards/Regulations	IEC 61643-21 / DIN EN 61643-21

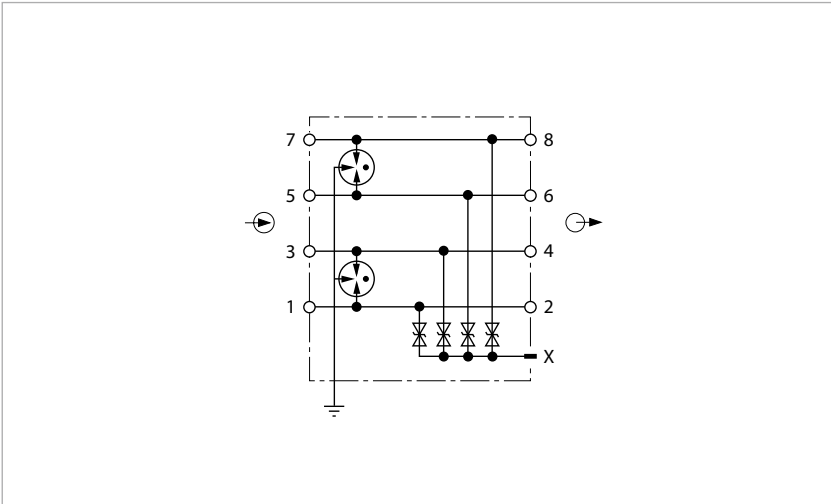
<b>Approvals and declarations</b>	
Ex approval acc. to conformity certificate	DEKRA 11 ATEX 0016 X
Device designation	$\text{Ex}$ II 1 G, II 1 D Ex ia IIC T4...T6; Ex iaD 20 T85°C...T135°C
Max. values:	Terminal connection: 1...8
Max. input voltage $U_i$	$\leq 36\text{ V}$
Max. input current $I_i$	$\leq 500\text{ mA}$
Max. input power $P_i$	$\leq 550\text{ mW}$
Internal inductance/capacitance $L_i/C_i$	$L_i = 1\ \mu\text{H}; C_i = 2.5\ \text{nF}$
Declaration	SIL 2 acc. to EXIDA FMEDA

<b>Environmental Conditions</b>	
Ambient temperature	-40...+80 $^\circ\text{C}$
Storage temperature	-40...+80 $^\circ\text{C}$

<b>Mechanical data</b>	
Tightening torque	0.8 Nm
Electrical connection	screw terminals
Terminal cross-section	2.5 mm <sup>2</sup>
Housing material	plastic
Mounting instruction	for DIN rail
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	6.2 x 93.1 x 102.5 mm

<b>Approval   Certification</b>	ATEX, IECEx, UL
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## Surge protection – 4 floating signal wires



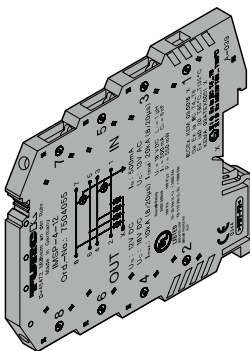
### Features

- ATEX, IECEx, UL
- Nominal voltage 12 VDC
- For 4 floating signal conductors
- IEC category: C1 / C2 / C3 / D1
- Flammability class V-0

The IMSP-4-12 is a surge protection module, designed for the MSR technology. It protects four 12 V operated floating signal conductors.

The devices are IP20 protected and can be installed in Ex as well as non-Ex areas.

The only 6.2 mm slim housing can be mounted on DIN rail acc. to DIN NS35.



## Technical data

<b>Type</b>	IMSP-4-12
Ident no.	7504055
<b>Nominal voltage <math>U_n</math></b>	12 VDC
IEC category	C1; C2; C3; D1
Surge arrester, rated voltage $U_c$	13 VAC / 18 VDC
<b>Nominal current <math>I_n</math> (<math>\leq 40^\circ\text{C}</math>)</b>	500 mA
Active current $I_c$ with given $U_c$	2 $\mu\text{A}$ (per path)
Leakage current acc. to PE with given $U_c$	4 $\mu\text{A}$
Nominal discharge surge current $I_n$ (8/20) $\mu\text{s}$ (core-core)	350 A
Nominal discharge surge current $I_n$ (8/20) $\mu\text{s}$ (core-ground)	5 kA
Total surge current (8/20) $\mu\text{s}$	20 kA
Total surge current (10/350) $\mu\text{s}$	2 kA
Discharge surge current $I_{\text{max}}$ (8/20) $\mu\text{s}$ (core-to-core)	350 A
Discharge surge current $I_{\text{max}}$ (8/20) $\mu\text{s}$ (core-to-earth)	10 kA
Nominal pulse current $I_{\text{an}}$ (10/1000) $\mu\text{s}$ (core-core)	70 A
Nominal pulse current $I_{\text{an}}$ (10/1000) $\mu\text{s}$ (core-ground)	50 A
Lightning test current (10/350) $\mu\text{s}$ , peak current $I_{\text{imp}}$	500 A
<b>Output voltage limitation 1kV/<math>\mu\text{s}</math> (core-to-core)</b>	$\leq 50\text{ V}$
Output voltage limitation 1kV/ $\mu\text{s}$ (core-to-earth)	$\leq 650\text{ V}$
Residual voltage $I_n$ (core-to-core)	$\leq 50\text{ V}$
Residual voltage $I_{\text{an}}$ (core-to-core)	$\leq 50\text{ V}$
Protection level $U_p$ C1 - 500 V/250 A (core-core)	$\leq 50\text{ V}$ (C1-500 V / 250 A)
Protection level $U_p$ C3 - 10 A (core-core)	$\leq 50\text{ V}$ (C3 - 10 A)
Protection level $U_p$ C1 - 500 V/250 A (core-ground)	$\leq 650\text{ V}$ (C1 - 500 V / 250 A)
Protection level $U_p$ C2 - 10 kV/5 kA (core-ground)	$\leq 650\text{ V}$ (C2 - 10 kV / 5 kA)
Protection level $U_p$ D1 - 500 A (core-ground)	$\leq 700\text{ V}$ (D1 - 500 A)
<b>Response time <math>t_A</math> (core-to-core)</b>	$\leq 1\text{ ns}$
Response time $t_A$ (core-to-earth)	$\leq 100\text{ ns}$
Insertion loss aE, sym.	Typ 0.1 dB (1 MHz / 50 $\Omega$ )
Insertion loss aE, asym.	Typ. 0.1 dB (300 kHz / 150 $\Omega$ )
Cutoff frequency fg (3dB), asym. (GND) 50 $\Omega$ system	Typ. 5 MHz
Cutoff frequency fg (3dB), asym. (GND) 150 $\Omega$ system	Typ. 1.5 MHz
Capacitance	$\leq 1.5\text{ nF}$ (per channel)
Resistance per path	0 $\Omega$
Required backup fuse, max.	500 mA
Surge protection acc. to IEC 61643-21 (core-to-core)	C1 (500 V / 250 A); C3 (25 A)
Surge protection acc. to IEC 61643-21 (core-to-earth)	C2 (10 kV / 5 kA); C3 (25 A); D1 (500 A)
AC protection acc. to IEC 61643-21	5 A - 1 s
<b>Standards for air and creepage distances</b>	IEC 60664-1 / EN 60079-11
Standards/Regulations	IEC 61643-21 / DIN EN 61643-21

<b>Approvals and declarations</b>	
Ex approval acc. to conformity certificate	DEKRA 11 ATEX 0016 X
Device designation	$\text{Ex}$ II 1 G, II 1 D Ex ia IIC T4...T6; Ex iaD 20 T85°C...T135°C
Max. values:	Terminal connection: 1...8
Max. input voltage $U_i$	$\leq 18\text{ V}$
Max. input current $I_i$	$\leq 500\text{ mA}$
Max. input power $P_i$	$\leq 550\text{ mW}$
Internal inductance/capacitance $L_i/C_i$	$L_i = 1\ \mu\text{H}; C_i = 6\text{ nF}$
Declaration	SIL 2 acc. to EXIDA FMEDA

<b>Environmental Conditions</b>	
Ambient temperature	-40...+80 $^\circ\text{C}$
Storage temperature	-40...+80 $^\circ\text{C}$

<b>Mechanical data</b>	
Tightening torque	0.8 Nm
Electrical connection	screw terminals
Terminal cross-section	2.5 mm <sup>2</sup>
Housing material	plastic
Mounting instruction	for DIN rail
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	6.2 x 93.1 x 102.5 mm

<b>Approval   Certification</b>	ATEX, IECEx, UL
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