IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx BVS 18.0005X**

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Issue No: 10

Certificate history:

Issue 9 (2023-01-23)
Issue 8 (2021-10-28)
Issue 7 (2021-06-09)
Issue 6 (2020-10-05)
Issue 5 (2020-07-14)
Issue 4 (2020-05-04)
Issue 3 (2018-10-26)
Issue 2 (2018-08-23)
Issue 1 (2018-05-29)
Issue 0 (2018-05-04)

Status: **Current**

Date of Issue: 2024-07-11

Applicant: **BECKHOFF Automation GmbH & Co. KG**
Huelshorstweg 20
33415 Verl
Germany

Equipment: **I/O Terminal Series type ELX****-****-****

Optional accessory:

Type of Protection: **Intrinsic Safety "i", Increased Safety "e"**

Marking:

Ex ec IIC T4 Gc	for terminals type ELX9560-****-****, type ELX9410-****-****
Ex ec [ia Ga] IIC T4 Gc [Ex ia Da] IIIC [Ex ia Ma] I	for all other terminals

Approved for issue on behalf of the IECEx Certification Body: **Dr Franz Eickhoff**

Position: **Senior Lead Auditor, Certification Manager and officially recognised expert**

Signature:
(for printed version)

Date:
(for printed version) 2024-07-11

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Certificate issued by:

DEKRA Testing and Certification GmbH
Certification Body
Dinnendahlstrasse 9
44809 Bochum
Germany

IECEx Certificate of Conformity

Manufacturer: **BECKHOFF Automation GmbH & Co. KG**
Huelshorstweg 20
33415 Verl
Germany

Manufacturing locations: **BECKHOFF Automation GmbH & Co. KG**
Huelshorstweg 20
33415 Verl
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This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements.This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :
The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

IEC 60079-7:2017 Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

DE/BVS/ExTR18.0031/10

Quality Assessment Report:

DE/BVS/QAR16.0010/08

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

Description

The I/O system terminals type ELX****-****-**** is a modular I/O system with contacts rated in the type of protection "ec" (supply contact / E-bus connector / spring-blade contact).

It consists of at least a power supply unit ELX9560, one of the signal terminals and a bus end cover ELX9012 resp. EtherCAT extension EK1110 to cover the power and E-bus contacts.

An integrated E-bus interface connects to ELX signal terminals right of the ELX9560 power supply unit and EK1110 right of the signal terminals. The signal terminals can be combined in any way. Their intrinsically safe output circuits (resp. switching circuits for ELX2792-****-****), type of protection Ex ia, can be led into areas which require EPL Ga, EPL Da or EPL Ma equipment. The ELX9410 power supply terminal for E-bus is used to refresh the non-intrinsically safe E-bus signal.

A fin at the front of the ELX9410 ensures the separation between the connection facilities of the signal terminal (intrinsically safe circuits) and the ELX9410 (non-intrinsically safe circuits).
There are 2 possible constellations to use the ELX9410:

- An additional ELX9560 power supply terminal followed by further ELX signal terminals can be connected to the right side of the ELX9410.
- Two ELX9410 terminals can be installed in direct succession for continuing the same terminal strand with standard Beckhoff EtherCAT Terminals.

The power supply unit ELX9560 and some signal terminals are available in 2 variants depending on the hardware version. These variants in different combinations are listed in the parameters. The Hardware version is marked on the power supply units as “HW:xx” where xx denotes the version number. The Hardware version is marked on the power supply units as “HW:xx” where xx denotes the version number.

Listing of all separately certified equipment used

Subject and type	Certificate	Standards
EtherCAT extension EK1110	IECEx DEK 16.0078X	IEC 60079-0:2017 IEC 60079-7:2017

Subject and Type
See Annex

Parameters
See Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The equipment shall only be used in an area of at pollution degree 1 or 2, as defined in IEC 60664-1.
2. The equipment shall be installed in an enclosure that provides a minimum ingress protection of IP54 in accordance with IEC 60079-0.
3. Transient protection shall be provided that is set at a level not exceeding 140 % of the peak rated voltage value at the supply terminals to the equipment.
4. The circuits shall be limited to overvoltage Category II as defined in IEC 60664-1.
5. The Terminal system is suitable for use in a temperature range of -25 °C to +60 °C.
6. Do not disconnect energized terminals.
7. The last terminal of each segment is to be covered by a bus end cover ELX9012 or EtherCAT extension EK1110, unless two ELX9410 terminals are installed in direct succession for continuing the same terminal segment with standard Beckhoff EtherCAT terminals (e.g. EL/ES/EK).
8. An additional ELX9560 power supply terminal, followed by further ELX signal terminals can be connected to the right side of the ELX9410.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

- For the I/O-terminal series, the following terminals were redesigned:
  - channel digital output terminal, type ELX2008-****-****
  - 2-channel analog input terminal 4…20 mA, type ELX3152-****-****
  - 8-channel analog input terminal 4…20 mA, type ELX3158-****-****
  - 1-channel analog input terminal 4…20 mA, HART, type ELX3181-****-****
  - 4-channel analog input terminal 4…20 mA, HART, type ELX3184-****-****
  - 2-channel analog input terminal RTD, type ELX3202-****-****
  - 4-channel analog input terminal RTD, type ELX3204-****-****
  - 2-channel analog input terminal thermocouple, type ELX3312-****-****
  - 4-channel analog input terminal thermocouple, type ELX3314-****-****
  - 4-channel analog output terminal 4…20 mA, type ELX4154-****-****
  - 1-channel analog output terminal 4…20 mA, HART, type ELX4181-****-****
  - 1-channel incremental encoder interface NAMUR, type ELX5151-****-****
- Approval for use of separately certified EtherCAT extension type EK1110
- Update of documents

Annex:

BVS_18_0005X_Beckhoff_Annex_issue10.pdf

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Certificate No.: **IECEx BVS 18.0005X issue No: 10**
Annex

Subject and Type

I/O Terminal Series type ELX****-****-****

Instead of the *** in the complete denomination letters and numerals will be inserted which characterize the different modifications:

Type ELX * * * * - * * * * - * * * *

9560	Power supply terminal, 24 V DC
9410	Power supply terminal for E-bus refresh
1052	2-channel digital input terminal NAMUR
1054	4-channel digital input terminal NAMUR
1058	8-channel digital input terminal NAMUR
2002	2-channel digital output terminal
2008	8-channel digital output terminal
2792	2-channel solid state relay output, potential-free
3152	2-channel analog input terminal 4…20 mA
3158	8-channel analog input terminal 4…20 mA
3181	1-channel analog input terminal 4…20 mA, HART
3184	4-channel analog input terminal 4…20 mA, HART
3202	2-channel analog input terminal RTD
3204	4-channel analog input terminal RTD
3252	2-channel analog input terminal potentiometer, 16 bit
3312	2-channel analog input terminal thermocouple
3314	4-channel analog input terminal thermocouple
3351	1-channel analog input terminal strain gauge
4154	4-channel analog output terminal 4…20 mA
4181	1-channel analog output terminal 4…20 mA, HART
5151	1-channel incremental encoder interface NAMUR

Software variant
(Not Ex-relevant, for information purposes only)

EtherCAT revision
(Not Ex-relevant, for information purposes only)

Parameters

1 Non-intrinsically safe circuits in level of protection ec

1.1 Power supply terminal type **ELX9560-****-******

1.1.1 Power supply circuit
Spring contacts
red (24V), blue (0V)

Connection cross-section:
solid conductor and flexible conductor: 0.08…2.5 mm², ferrule : 0.14…1.0 mm²

Rated nominal voltage (-15 %, +20 %)	U_n	DC	24	V
Rated maximal current	I_n		750	mA
Maximum voltage	U_m	AC	253	V

1.1.2 E-bus circuit
E-bus connector

Rated nominal voltage	U_n	DC	5	V
Rated current	I_n		40	mA
Maximum voltage	U_m	AC	253	V

1.2 Power supply terminal for E-bus type **ELX9410-****-******

1.2.1 Supply circuit
Clamp contacts 5
(Input 24V), 6 (Input 0V)

Connection cross-section:
solid conductor and flexible conductor: 0.08…2.5 mm², ferrule : 0.14…1.5 mm²

Rated nominal voltage (-15 %, +20 %)	U_n	DC	24	V
Maximum voltage	U_m	AC	253	V

1.2.2 E-bus circuit
E-bus connector

Rated nominal voltage (-15 %, +20 %)	U_n	DC	5	V
Rated current	I_n		40	mA
Maximum voltage	U_m	AC	253	V

1.3 EtherCAT extension type **EK1110-xxxx**

1.3.1 Ethernet circuit
Ethernet RJ45 connector X1

Rated nominal voltage (-15 %, +20 %)	U_n	DC	3.3	V
Rated power	P_n		160	mW
Maximum voltage	U_m	AC	253	V

1.3.2 E-bus circuit
E-bus connector

Rated nominal voltage (-15 %, +20 %)	U_n	DC	5	V
Rated current	I_n		130	mA
Maximum voltage	U_m	AC	253	V

The front terminal contacts are not fitted.

2 Intrinsically safe output circuits in level of protection “ia” for connection of intrinsically safe sensors or actuators

2.1 Signal terminal type **ELX1052-****-******

Channel 1: Clamp contacts 4 (Uv1), 1 (Input 1, I1)
Channel 2: Clamp contacts 8 (Uv2), 5 (Input 2, I2)

Each channel:

Maximum output voltage	U_o	10.75	V
Maximum output current	I_o	12	mA
Linear output characteristics			
Maximum output power	P_o	33	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	58	66	15	2.14
L_o [mH]	100	100	100	100

2.2 Signal terminal type **ELX1054-****-******

Channel 1: Clamp contacts 2 (Uv1), 1 (Input 1, I1)
Channel 2: Clamp contacts 6 (Uv2), 5 (Input 2, I2)
Channel 3: Clamp contacts 3 (Uv3), 4 (Input 3, I3)
Channel 4: Clamp contacts 7 (Uv4), 8 (Input 4, I4)

Each channel:

Maximum output voltage	U_o	10.72	V
Maximum output current	I_o	10.4	mA
Linear output characteristics			
Maximum output power	P_o	28	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	58	66	15	2.14
L_o [mH]	100	100	100	100

2.3 Signal terminal type **ELX1058-****-******

Channel 1: Clamp contacts 9 (Uv1), 1 (Input 1)
Channel 2: Clamp contacts 10 (Uv2), 2 (Input 2)
Channel 3: Clamp contacts 11 (Uv3), 3 (Input 3)
Channel 4: Clamp contacts 12 (Uv4), 4 (Input 4)

Channel 5: Clamp contacts 13 (Uv5), 5 (Input 5)
Channel 6: Clamp contacts 14 (Uv6), 6 (Input 6)
Channel 7: Clamp contacts 15 (Uv7), 7 (Input 7)
Channel 8: Clamp contacts 16 (Uv8), 8 (Input 8)

Each channel:

Maximum output voltage	U_o	10.72	V
Maximum output current	I_o	10.4	mA
Linear output characteristics			
Maximum output power	P_o	28	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	58	66	15	2.14
L_o [mH]	100	100	100	100

2.4 Signal terminal type **ELX2002-****-******

Channel 1: Clamp contacts 1 (+Output1, +O1), 3 (-Output1, -O1)
Channel 2: Clamp contacts 5 (+Output2, +O2), 7(-Output2, -O2)

Each channel:
The output values depend on the connected power supply unit:

2.4.1 When connected to ELX9560-****-**** **HW:xx** with xx < 05
(Variants with Hardware version below 05)

Maximum output voltage	U_o	27.7	V
Maximum output current	I_o	111	mA
Linear output characteristics			
Maximum output power	P_o	768	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.45	2.2	0.663	0.085
L_o [mH]	24	16	9.2	0.094

2.4.2 When connected to ELX9560-****-**** **HW:xx** with xx ≥ 05
(Variants with Hardware version 05 or above)

Maximum output voltage	U_o	27	V
Maximum output current	I_o	109	mA
Linear output characteristics			
Maximum output power	P_o	730	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.75	2.33	0.705	0.09
L_o [mH]	25	17	9.9	0.47

2.5 Signal terminal type **ELX2008-****-******

Channel 1: Clamp contacts 1 (+Output1, +O1), 2 (-Output1, -O1)
Channel 2: Clamp contacts 5 (+Output2, +O2), 6 (-Output2, -O2)
Channel 3: Clamp contacts 4 (+Output3, +O3), 3 (-Output3, -O3)
Channel 4: Clamp contacts 8 (+Output4, +O4), 7 (-Output4, -O4)

Channel 5: Clamp contacts 9 (+Output5, +O5), 10 (-Output5, -O5)
Channel 6: Clamp contacts 13 (+Output6, +O6), 14 (-Output6, -O6)
Channel 7: Clamp contacts 12 (+Output7, +O7), 11 (-Output7, -O7)
Channel 8: Clamp contacts 16 (+Output8, +O8), 15 (-Output8, -O8)

Each channel:
The output values depend on the hardware versions of connected power supply unit and signal terminal:

2.5.1 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX2008-******-****
HW:xx with xx	< 05	< 01

Maximum output voltage	U_o	27.7	V
Maximum output current	I_o	111	mA
Linear output characteristics			
Maximum output power	P_o	773	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.45	2.2	0.663	0.085
L_o [mH]	24	16	9.2	0.094

2.5.2 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX2008-******-****
HW:xx with xx	≥ 05	< 01

Maximum output voltage	U_o	27	V
Maximum output current	I_o	109	mA
Linear output characteristics			
Maximum output power	P_o	735	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.75	2.33	0.705	0.09
L_o [mH]	25	17	9.9	0.47

2.5.3 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX2008-******-****
HW:xx with xx	< 05	≥ 01

Maximum output voltage	U_o	27.7	V
Maximum output current	I_o	109	mA
Linear output characteristics			
Maximum output power	P_o	751	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.45	2.2	0.663	0.085
L_o [mH]	25	17	9.6	0.18

2.5.4 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX2008-******-****
HW:xx with xx	≥ 05	≥ 01

Maximum output voltage	U_o	27	V
Maximum output current	I_o	106	mA
Linear output characteristics			
Maximum output power	P_o	713	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.75	2.33	0.705	0.09
L_o [mH]	27	19	11	0.63

2.6 Signal terminal type **ELX3152-******-****
Channel 1: Clamp contacts 1 (Uv1), 2 (GND, -I1), 3 (Input1, +I1)
Channel 2: Clamp contacts 5 (Uv2), 6 (GND, -I2), 7 (Input2, +I2)

Each channel:
The output values depend on the hardware versions of connected power supply unit and signal terminal:

2.6.1 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX3152-******-****
HW:xx with xx	< 05	< 02

Maximum output voltage	U_o	27.7	V
Maximum output current	I_o	85	mA
Linear output characteristics			
Maximum output power	P_o	565	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.45	2.2	0.663	0.085
L_o [mH]	43	30	18	2

2.6.2 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX3152-******-****
HW:xx with xx	≥ 05	< 02

Maximum output voltage	U_o	27	V
Maximum output current	I_o	80	mA
Linear output characteristics			
Maximum output power	P_o	540	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.75	2.33	0.705	0.09
L_o [mH]	49	35	21	2.8

2.6.3 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX3152-****-******
HW:xx with xx	< 05	≥ 02

Maximum output voltage	U_o	27.7	V
Maximum output current	I_o	76	mA
Linear output characteristics			
Maximum output power	P_o	522	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.45	2.2	0.663	0.085
L_o [mH]	55	39	23	3.1

2.6.4 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX3152-****-******
HW:xx with xx	≥ 05	≥ 02

Maximum output voltage	U_o	27	V
Maximum output current	I_o	74	mA
Linear output characteristics			
Maximum output power	P_o	496	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.75	2.33	0.705	0.09
L_o [mH]	59	42	25	3.7

2.7 Signal terminal type **ELX3158-****-******
Channel 1: Clamp contacts 1 (Input1, I1), 9 (Uv1)
Channel 2: Clamp contacts 5 (Input2, I2), 13 (Uv2)
Channel 3: Clamp contacts 2 (Input3, I3), 10 (Uv3)
Channel 4: Clamp contacts 6 (Input4, I4), 14 (Uv4)
Channel 5: Clamp contacts 3 (Input5, I5), 11 (Uv5)
Channel 6: Clamp contacts 7 (Input6, I6), 15 (Uv6)
Channel 7: Clamp contacts 4 (Input7, I7), 12 (Uv7)
Channel 8: Clamp contacts 8 (Input8, I8), 16 (Uv8)

Each channel:
The output values depend on the hardware versions of connected power supply unit and signal terminal:

2.7.1 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX3158-****-******
HW:xx with xx	< 05	< 01

Maximum output voltage	U_o	27.7	V
Maximum output current	I_o	85	mA
Linear output characteristics			
Maximum output power	P_o	565	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.45	2.2	0.663	0.085
L_o [mH]	43	30	18	2

2.7.2 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX3158-******-****
HW:xx with xx	≥ 05	< 01

Maximum output voltage	U_o	27	V
Maximum output current	I_o	80	mA
Linear output characteristics			
Maximum output power	P_o	535	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.75	2.33	0.705	0.09
L_o [mH]	49	35	21	2.8

2.7.3 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX3158-******-****
HW:xx with xx	< 05	≥ 01

Maximum output voltage	U_o	27.7	V
Maximum output current	I_o	76	mA
Linear output characteristics			
Maximum output power	P_o	522	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.45	2.2	0.663	0.085
L_o [mH]	55	39	23	3.1

2.7.4 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX3158-******-****
HW:xx with xx	≥ 05	≥ 01

Maximum output voltage	U_o	27	V
Maximum output current	I_o	74	mA
Linear output characteristics			
Maximum output power	P_o	496	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.75	2.33	0.705	0.09
L_o [mH]	59	42	25	3.7

2.8 Signal terminal type **ELX3181-****-******
Channel 1: Clamp contacts 8 (Uv1), 7(Input1, I1)

The output value depends on the hardware versions of connected power supply unit and signal terminal:

2.8.1 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX3181-****-******
HW:xx with xx	< 05	< 02

Maximum output voltage	U_o	27.7	V
Maximum output current	I_o	85	mA
Linear output characteristics			
Maximum output power	P_o	565	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.45	2.2	0.663	0.085
L_o [mH]	43	30	18	2

2.8.2 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX3181-****-******
HW:xx with xx	≥ 05	< 02

Maximum output voltage	U_o	27	V
Maximum output current	I_o	80	mA
Linear output characteristics			
Maximum output power	P_o	535	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.75	2.33	0.705	0.09
L_o [mH]	49	35	21	2.8

2.8.3 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX3181-****-******
HW:xx with xx	< 05	≥ 02

Maximum output voltage	U_o	27.7	V
Maximum output current	I_o	76	mA
Linear output characteristics			
Maximum output power	P_o	522	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.45	2.2	0.663	0.085
L_o [mH]	55	39	23	3.1

2.8.4 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX3181-****-******
HW:xx with xx	≥ 05	≥ 02

Maximum output voltage	U_o	27	V
Maximum output current	I_o	74	mA
Linear output characteristics			
Maximum output power	P_o	496	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.75	2.33	0.705	0.09
L_o [mH]	59	42	25	3.7

2.9 Signal terminal type **ELX3184-****-******
Channel 1: Clamp contacts 4 (Uv1), 2 (I1)
Channel 2: Clamp contacts 8 (Uv2), 6 (I2)
Channel 3: Clamp contacts 12 (Uv3), 10 (I3)
Channel 4: Clamp contacts 16 (Uv4), 14(I4)

The output values depend on the hardware versions of connected power supply unit and signal terminal:

2.9.1 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX3184-****-******
HW:xx with xx	< 05	< 01

Maximum output voltage	U_o	27.7	V
Maximum output current	I_o	81	mA
Linear output characteristics			
Maximum output power	P_o	561	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.45	2.2	0.663	0.085
L_o [mH]	43	34	20	2.4

2.9.2 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX3184-****-******
HW:xx with xx	≥ 05	< 01

Maximum output voltage	U_o	27	V
Maximum output current	I_o	79	mA
Linear output characteristics			
Maximum output power	P_o	534	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.75	2.33	0.705	0.09
L_o [mH]	49	36	20	3

2.9.3 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX3184-******-****
HW:xx with xx	< 05	≥ 01

Maximum output voltage	U_o	27.7	V
Maximum output current	I_o	76	mA
Linear output characteristics			
Maximum output power	P_o	522	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.45	2.2	0.663	0.085
L_o [mH]	55	39	23	3.1

2.9.4 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX3184-******-****
HW:xx with xx	≥ 05	≥ 01

Maximum output voltage	U_o	27	V
Maximum output current	I_o	74	mA
Linear output characteristics			
Maximum output power	P_o	496	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.75	2.33	0.705	0.09
L_o [mH]	59	42	25	3.7

2.10 Signal terminal type **ELX3202-****-******
Channel 1: Clamp contacts 1 (+RL1), 2 (+R1), 5 (-RL1), 6 (-R1)
Channel 2: Clamp contacts 3 (+RL2), 4 (+R2), 7 (-RL2), 8 (-R2)

Each channel:

Maximum output voltage	U_o	4.94	V
Maximum output current	I_o	12	mA
Linear output characteristics			
Maximum output power	P_o	15	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I, IIA, IIB, IIIC	IIC
C_o [µF]	1000	100
L_o [mH]	100	100

2.11 Signal terminal type **ELX3204-****-******
Channel 1: Clamp contacts 1 (+R1), 5 (-R1)
Channel 2: Clamp contacts 2 (+R2), 6 (-R2)
Channel 3: Clamp contacts 3 (+R3), 7 (-R3)
Channel 4: Clamp contacts 4 (+R4), 8 (-R4)

Each channel:

Maximum output voltage	U_o	4.94	V
Maximum output current	I_o	12	mA
Linear output characteristics			
Maximum output power	P_o	15	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I, IIA, IIB, IIIC	IIC
C_o [µF]	1000	100
L_o [mH]	100	100

2.12 Signal terminal type **ELX3252-****-******
Channel 1: Clamp contacts 1 (-R1), 5 (+R1), 2 (RL1)
Channel 2: Clamp contacts 4 (-R2), 8 (+R2), 3 (RL2)

Each channel:

Maximum output voltage	U_o	4.94	V
Maximum output current	I_o	12	mA
Linear output characteristics			
Maximum output power	P_o	16	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I, IIA, IIB, IIIC	IIC
C_o [µF]	1000	100
L_o [mH]	100	100

2.13 Signal terminal type **ELX3312-****-******
Channel 1: Clamp contacts 1 (+TC1), 5 (-TC1)
Channel 2: Clamp contacts 2 (+TC2), 6 (-TC2)

Each channel:

Maximum output voltage	U_o	4.94	V
Maximum output current	I_o	0.5	mA
Linear output characteristics			
Maximum output power	P_o	0.5	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I, IIA, IIB, IIIC	IIC
C_o [µF]	1000	100
L_o [mH]	100	100

2.14 Signal terminal type **ELX3314-****-******

Channel 1: Clamp contacts 1 (+TC1), 5 (-TC1)
Channel 2: Clamp contacts 2 (+TC2), 6 (-TC2)
Channel 3: Clamp contacts 3 (+TC3), 7 (-TC3)
Channel 4: Clamp contacts 4 (+TC4), 8 (-TC4)

Each channel:

Maximum output voltage	U_o	4.94	V
Maximum output current	I_o	0.5	mA
Linear output characteristics			
Maximum output power	P_o	0.5	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I, IIA, IIB, IIIC	IIC
C_o [µF]	1000	100
L_o [mH]	100	100

2.15 Signal terminal type **ELX3351-****-******

Channel 1: Clamp contacts 2 (+UD), 6 (-UD), 3 (+UR), 7 (-UR), 4 (+UV), 8 (-UV)

Maximum output voltage	U_o		
voltage difference between 2 clamps		11.76	V
Maximum output current	I_o	146	mA
Maximum output power	P_o	214	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	40	39	9.9	1.5
L_o [mH]	20	13.3	6.6	1.7

2.16 Signal terminal type **ELX4154-****-******

Channel 1: Clamp contacts 9 (Output 1, 01), 5 (GND)
Channel 2: Clamp contacts 10 (Output 2, 02), 6 (GND)
Channel 3: Clamp contacts 11 (Output 3, 03), 7 (GND)
Channel 4: Clamp contacts 12 (Output 4, 04), 8 (GND)

Each channel:
The output values depend on the hardware versions of connected power supply unit and signal terminal:

2.16.1 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX4154-****-******
HW:xx with xx	< 05	< 02

Maximum output voltage	U_o	27.7	V
Maximum output current	I_o	85	mA
Linear output characteristics			
Maximum output power	P_o	565	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.45	2.2	0.663	0.085
L_o [mH]	43	30	18	2

2.16.2 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX4154-****-******
HW:xx with xx	≥ 05	< 02

Maximum output voltage	U_o	27	V
Maximum output current	I_o	80	mA
Linear output characteristics			
Maximum output power	P_o	535	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.75	2.33	0.705	0.09
L_o [mH]	49	35	21	2.8

2.16.3 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX4154-****-******
HW:xx with xx	< 05	≥ 02

Maximum output voltage	U_o	27.7	V
Maximum output current	I_o	76	mA
Linear output characteristics			
Maximum output power	P_o	522	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.45	2.2	0.663	0.085
L_o [mH]	55	39	23	3.1

2.16.4 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX4154-****-******
HW:xx with xx	≥ 05	≥ 02

Maximum output voltage	U_o	27	V
Maximum output current	I_o	74	mA
Linear output characteristics			
Maximum output power	P_o	496	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.75	2.33	0.705	0.09
L_o [mH]	59	42	25	3.7

2.17 Signal terminal type **ELX4181-****-******
Channel 1: Clamp contacts 8 (Output 1, O1), 6 (GND)

The output value depends on the hardware versions of connected power supply unit and signal terminal:

2.17.1 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX4181-****-******
HW:xx with xx	< 05	< 03

Maximum output voltage	U_o	27.7	V
Maximum output current	I_o	85	mA
Linear output characteristics			
Maximum output power	P_o	565	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.45	2.2	0.663	0.085
L_o [mH]	43	30	18	2

2.17.2 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX4181-****-******
HW:xx with xx	≥ 05	< 03

Maximum output voltage	U_o	27	V
Maximum output current	I_o	80	mA
Linear output characteristics			
Maximum output power	P_o	535	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.75	2.33	0.705	0.09
L_o [mH]	49	35	21	2.8

2.17.3 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX4181-****-******
HW:xx with xx	< 05	≥ 03

Maximum output voltage	U_o	27.7	V
Maximum output current	I_o	76	mA
Linear output characteristics			
Maximum output power	P_o	522	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.45	2.2	0.663	0.085
L_o [mH]	55	39	23	3.1

2.17.4 These parameters apply to the combination of hardware versions from the table:

Hardware Version	Power supply type **ELX9560-******-****	Signal terminal type **ELX4181-****-******
HW:xx with xx	≥ 05	≥ 03

Maximum output voltage	U_o	27	V
Maximum output current	I_o	74	mA
Linear output characteristics			
Maximum output power	P_o	496	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	3.75	2.33	0.705	0.09
L_o [mH]	59	42	25	3.7

2.18 Signal terminal type **ELX5151-****-******
Channel 1: Clamp contacts 4 (Uv1), 1 (A)
Channel 2: Clamp contacts 8 (Uv2), 5 (B)

Each channel:

Maximum output voltage	U_o	10.72	V
Maximum output current	I_o	12.4	mA
Linear output characteristics			
Maximum output power	P_o	33	mW

Maximum external capacitance C_o or maximum external inductance L_o:

	I	IIA	IIB / IIIC	IIC
C_o [µF]	58	66	15	2.14
L_o [mH]	100	100	100	100

3 Intrinsically safe switching circuits in level of protection ia
Signal terminal type **ELX2792-****-******

Channel 1: Clamp contacts 14 (NO_1), 11 (COM_1), 12 (NC_1)
Channel 2: Clamp contacts 24 (NO_2), 21 (COM_2), 22 (NC_2)

Each channel:

Nominal switching voltage		AC/DC ≤ 30	V
Nominal switching current		AC ≤ 0.5	A
		DC ≤ 1	A
Maximum input voltage	U_i	AC/DC 30	V
Maximum input current	I_i	internally limited	
Maximum input power	P_i	internally limited	
Effective internal capacitance	C_i	0.9	nF
Effective internal inductance	L_i	negligible	

4 Ambient temperature range T_a -25 °C … 60 °C