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 DEK 11.0054**

Page 1 of 4

Certificate history:

Status: **Current**

Issue No: 7

Issue 6 (2024-09-13)
Issue 5 (2022-07-28)
Issue 4 (2021-04-09)
Issue 3 (2019-06-21)
Issue 2 (2018-10-05)
Issue 1 (2017-12-11)
Issue 0 (2012-08-30)

Date of Issue: 2025-08-21

Applicant: **Knick Elektronische Messgeräte GmbH & Co. KG**
Beuckestrasse 22
14163 Berlin
Germany

Equipment: **Modular Analyzing System Protos Type 3400 X•/••• and Protos II Type 4400X•/•••**

Optional accessory:

Type of Protection: **Ex e, Ex i, Ex m, Ex t**

Marking: Ex eb ib mb [ia Ga] IIC T4 Gb,
Ex ec ib mb [ia Ga] IIC T4 Gc,
Ex ib tb [ia Da] IIIC T70 °C Db

Approved for issue on behalf of the IECEx Certification Body: **R. Schuller**

Position: **Certification Manager**

Signature:
(for printed version)

Date:
(for printed version) 2025-08-21

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Meander 1051
6825 MJ Arnhem
Netherlands

IECEx Certificate of Conformity

Manufacturer: **Knick Elektronische Messgeräte GmbH & Co. KG**
Beuckestrasse 22
14163 Berlin
Germany

Manufacturing locations: **Knick Elektronische Messgeräte GmbH & Co. KG**
Beuckestrasse 22
14163 Berlin
Germany

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 60079-18:2017 Explosive atmospheres - Part 18: Protection by encapsulation "m"
Edition:4.1

IEC 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

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:

NL/DEK/ExTR11.0058/07

Quality Assessment Report:

DE/TUN/QAR06.0016/13

IECEx Certificate of Conformity

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

The Modular Analyzing System Protos and Protos II Type •400 X•/••• is intended to record and process data from electrochemical fluid analysis. By using exchangeable measuring and interface modules, the system can be configured to provide the required measuring and control functions. The complete Protos and Protos II •400 X•/••• system is housed in a polished or polyester-coated waterproof and dust-tight stainless steel enclosure and provides a degree of ingress protection IP65 in accordance with IEC 60079-0 and IEC 60529 as well as Type 4X in accordance with NEMA 250.

It consists of the BASE module including the power supply and the FRONT module as door, and provides space for the installation of up to three measuring and interface modules as listed in Annex 1. Used Ex Components are also referenced in this Annex.
The frontside of the door Protos and Protos II FRONT •400 X•-01• holds the keypad and the LC display, the backside of the door provides a ZU1080-P-X-..../SmartMedia memory card connector.

The door Protos and Protos II FRONT •400 X•-01• may be opened for a short time in order to change the ZU1080-P-X-..../SmartMedia memory card.

Ambient temperature range -20 °C to +50 °C.

The maximum surface temperature of the housing T70 °C is based on a maximum ambient temperature of +50 °C.

Electrical data

See Annex 1.

SPECIFIC CONDITIONS OF USE: NO

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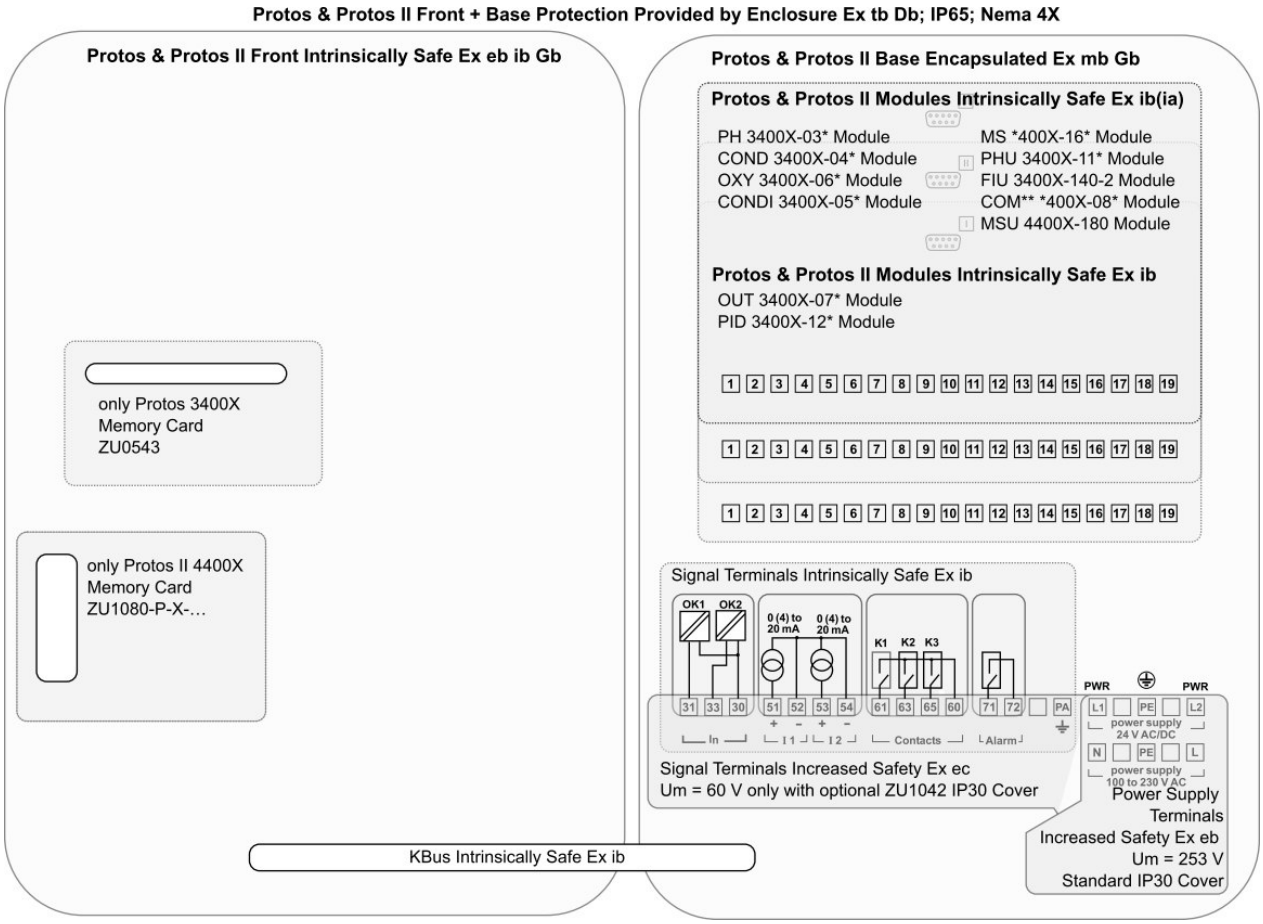
DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Minor constructional changes

Annex:

230218600-Annex 1.pdf

System overview



Throughout this document, a comma “,” is used as the decimal separator.

Type designation

Module:	Description:	Type of protection:	
		IIC T4	IIIC T70°C
BASE 3400 X*/*** or BASE 4400 X*/***	Enclosure base Ex eb or tb Exchangeable power terminals Ex eb[1] with encapsulated fuse Ex mb 100-230 V ac or 24 V ac/dc power supply with Ex i barriers and separations Ex mb Signal terminals Ex ib or ec (Ex ec only when covered by terminal cover ZU1042) Knick proprietary KBus Ex ib	Ex eb ib mb Gb or Ex ec ib mb Gc	Ex ib tb Db
FRONT 3400 X*-01*	Front door Ex eb or tb Keypad, Knick proprietary memory card interface and link from power supply Ex ib	Ex eb ib Gb	Ex ib tb Db
FRONT 4400 X*-01*	Front door Ex eb or tb Keypad, Knick proprietary memory card interface and link from power supply Ex ib	Ex eb ib Gb	Ex ib tb Db
PH 3400X-03*	pH-Measurement Module Knick proprietary KBus Ex ib Sensor terminals Ex ia	Ex ib [ia Ga] Gb	Ex ib [ia Da] Db

[1] Terminals Phoenix type MKKDSH 3/…-EX, certified per IECEx KEM 07.0019U issue 3, marking Ex eb IIC Gb.

Module:	Description:	Type of protection:	
		IIC T4	IIIC T70°C
COND 3400X-04*	Conductivity Measurement Module Knick proprietary KBus Ex ib Sensor terminals Ex ia	Ex ib [ia Ga] Gb	Ex ib [ia Da] Db
OXY 3400X-06*	Oxygen Concentration Measurement Module Knick proprietary KBus Ex ib Sensor terminals Ex ia	Ex ib [ia Ga] Gb	Ex ib [ia Da] Db
PHU 3400X-11*	Unical 9000 X Communication Module Knick proprietary KBus Ex ib Sensor terminals Ex ia	Ex ib [ia Ga] Gb	Ex ib [ia Da] Db
CONDI 3400X-05*	Inductive Conductivity Measurement Module Knick proprietary KBus Ex ib Sensor terminals Ex ia	Ex ib [ia Ga] Gb	Ex ib [ia Da] Db
OUT 3400X-07*	Output Module (Analog and Switch Outputs) Knick proprietary KBus Ex ib Signal terminals Ex ib	Ex ib Gb	Ex ib Db
PID 3400X-12*	PID Controller Knick proprietary KBus Ex ib Signal terminals Ex ib	Ex ib Gb	Ex ib Db
COM** 3400X-08*	Interface (Profibus-PA and Foundation Fieldbus) Knick proprietary KBus Ex ib Signal terminals Ex ia	Ex ib [ia Ga] Gb	Ex ib [ia Da] Db
COM** 4400X-08*	Interface (Profibus-PA and Foundation Fieldbus) Knick proprietary KBus Ex ib Signal terminals Ex ia	Ex ib [ia Ga] Gb	Ex ib [ia Da] Db
CO2 3400X-130	Carbon dioxide Concentration Measurement Module Knick proprietary KBus Ex ib Sensor terminals Ex ia	Ex ib [ia Ga] Gb	Ex ib [ia Da] Db
FIU 3400X-140-2	Tripple RS 485 Module Knick proprietary KBus Ex ib Sensor terminals Ex ia	Ex ib [ia Ga] Gb	Ex ib [ia Da] Db
MS 3400X-16* or MS 4400X-16*	Memosens Module Knick proprietary KBus Ex ib Sensor terminals Ex ia	Ex ib [ia Ga] Gb	Ex ib [ia Da] Db
MSU 4400X-18*	Memosens Module with optional Unical 9000 X supply and communication Knick proprietary KBus Ex ib Sensor terminals Ex ia	Ex ib [ia Ga] Gb	Ex ib [ia Da] Db

Electrical data

BASE 3400 X*/*** and BASE 4400 X*/***:

Power supply circuit (terminals KL L, KL N, KL PE)	In type of protection increased safety Ex eb, with the following electrical data: 100 ... 230 Vac (-15%, +10%), 15 VA, 48 ... 62 Hz Internally fused 315 mA/T U_m = 253 V					
Power supply circuit (terminals KL L1, KL L2, KL PE)	In type of protection increased safety Ex eb, with the following electrical data: 24 V ac (-15%, +10%), 15 VA, 48 ... 62 Hz or 24 V dc (-15%, +20%), 8 W Internally fused 630 mA/T U_m = 253 V					
	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to intrinsically safe circuits, with the following maximum values per circuit:					
	U_i (V)	I_i (mA)	P_i (W)	C_i (nF)	L_i (mH)	
OK-inputs OK1 and OK2 (KL30, KL31 and KL30, KL33)	30	any	any	0	0	R_i = 3 kOhm
Switch circuits K1, K2, K3, K4 (KL60, KL61, KL63, KL65 and KL71, KL72)	30	500	10	0	0	
	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, with the following maximum values:					
	U_o (V)	I_o (mA)	P_o (mW)	C_o (nF)	L_o (mH)	
Output circuits I1 and I2 (KL51, KL52 and KL53, KL54)	17	84	357	243	3	Linear characteristic
	In type of protection increased safety Ex ec, only for connection to SELV/PELV circuits, with the following maximum values per circuit:					
OK-inputs OK1 and OK2 (KL30, KL31 and KL30, KL33 covered by terminal cover ZU1042)	30 V U_m = 60 V					
Switch circuits K1, K2, K3, K4 (KL60, KL61, KL63, KL65 and KL71, KL72 covered by terminal cover ZU1042)	30 V, 500 mA, 10 W U_m = 60 V					
Output circuits I1 and I2 (KL51, KL52 and KL53, KL54 covered by terminal cover ZU1042)	U_m = 60 V					
Knick proprietary K-Bus (D-SUB and modular connector)	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to the certified Knick modules as listed in this attachment.					
The power supply circuit is infallibly galvanically separated from all other circuits up to a peak voltage of 375 V. The switch circuits K1, K2, K3, the switch circuit K4, the OK-input circuits OK1, OK2, the output circuits I1, I2 and the power supply, KBus are infallibly galvanically separated from each other up to a peak voltage of 60 V. The switch circuits K1, K2 and K3 are galvanically connected. The OK-inputs OK1 and OK2 are galvanically connected. The output circuits I1 and I2 are galvanically connected.						

FRONT 3400 X*/***:

KBus modular connector	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to the certified Knick module BASE *400 X*/***
SmartMedia-Card (SmartMedia-Card Slot)	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to SmartMedia-Card Type ZU-0543

FRONT 4400 X*/***:

KBus modular connector	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to the certified Knick module BASE *400 X*/***
ZU1080-P-X-…. connector (for memory card)	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to Knick memory card Type ZU1080-P-X-….

PH 3400X-03* (exceptions see below):

	In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, with the following maximum values:					
	U_o (V)	I_o (mA)	P_o (mW)	C_o (µF)	L_o (mH)	
pH-Measuring circuit (KL2, KL8, KL12, KL13, KL16)	10	20	25	1,5	1	Linear characteristic
DF-supply circuit (KL14, KL15)	10	14	35	1,26	1,2	Linear characteristic
Temperature measurement circuit (KL17, KL18, KL19)	10	10	12	1,2	1	Linear characteristic
pH / Temperature measurement circuit (KL2, KL8, KL12, KL13, KL16, KL 17, KL18, KL19)	10	30	38	1,1	1	Linear characteristic
KBus (ST1)	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to the certified Measuring System Type *400 X*/***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the KBus up to a peak voltage of 60 V.						

COND 3400X-04*:

	In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, with the following maximum values:					
	U_o (V)	I_o (mA)	P_o (mW)	C_o (µF)	L_o (mH)	
Conductivity measurement circuit (KL1, KL2, KL3, KL4, KL5)	10	112	139	1	1	Linear characteristic
Temperature measurement circuit (KL16, KL17, KL18, KL19)	10	10	12	1,26	1	Linear characteristic
Conductivity / Temperature measurement circuit (KL1, KL2, KL3, KL4, KL5, KL16, KL17, KL18, KL19)	10	122	153	0,858	1	Linear characteristic
KBus (ST1)	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to the certified Measuring System Type *400 X*/***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the KBus up to a peak voltage of 60 V.						

PH 3400X-035, PH 3400X-036 and CO2 3400X-130:

	In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, with the following maximum values:					
	U_o (V)	I_o (mA)	P_o (mW)	C_o (µF)	L_o (mH)	
pH measurement circuit (KL2, KL8, KL12, KL15)	12	1,6	2,9	0,947	1	Linear characteristic
pH/ISFET measurement circuit (KL2, KL8, KL12, KL13, KL14, KL15)	12	4,3	7,8	0,933	1	Linear characteristic
Temperature measurement circuit (KL18, KL19)	7,2	6,6	11,9	3	1	Linear characteristic
pH / Temperature measurement circuit (KL2, KL8, KL12, KL15, KL18, KL19)	12	8,2	14,8	0,923	1	Linear characteristic
pH / ISFET / Temperature measurement circuit (KL2, KL8, KL12, KL13, KL14, KL15, KL18, KL19)	12	10,9	19,7	0,909	1	Linear characteristic
pH / ISM / Temperature measurement circuit (KL2, KL8, KL12, KL15, KL16, KL17, KL18, KL19)	12	23,4	42,2	0,911	1	Linear characteristic
pH / ISFET / ISM / Temperature measurement circuit (KL2, KL8, KL12, KL13, KL14, KL15, KL16, KL17,KL18, KL19)	12	26,1	47	0,909	1	Linear characteristic
KBus (ST1)	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to the certified Measuring System Type *400 X*/***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the KBus up to a peak voltage of 60 V.						

OXY 3400X-06* (exceptions see below):

	In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, with the following maximum values:					
	U_o (V)	I_o (mA)	P_o (mW)	C_o (µF)	L_o (mH)	
Oxygen measurement circuit (KL2, KL8, KL13, KL14, KL15, KL16)	10	10	13	1,5	1	Linear characteristic
Temperature measurement circuit (KL17, KL18)	10	1	2	1,38	1	Linear characteristic
Oxygen / Temperature measurement circuit (KL2, KL8, KL13, KL14, KL15, KL16, KL17, KL18)	10	11	14	1,38	1	Linear characteristic
KBus (ST1)	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to the certified Measuring System Type *400 X*/***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the KBus up to a peak voltage of 60 V.						

OXY 3400X-065 and OXY 3400X-066:

	In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, with the following maximum values:					
	U_o (V)	I_o (mA)	P_o (mW)	C_o (µF)	L_o (mH)	
Oxygen measurement circuit (KL2, KL8, KL12, KL13)	10	7,5	10	1,5	1	Linear characteristic
Temperature measurement circuit (KL16, KL17)	5	1	1,5	4,4	5	Linear characteristic
Oxygen / Temperature measurement circuit (KL2, KL8, KL12, KL13, KL16, KL17)	10	9	12	1,4	1	Linear characteristic
Oxygen / ISM / Temperature measurement circuit (KL2, KL8, KL12, KL13, KL14, KL15, KL16, KL17)	10	19	24	1,4	1	Linear characteristic
	In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, only for connection to intrinsically safe circuits, with the following maximum values:					
	U_i (V)	I_i (mA)	P_i (mW)	C_i (nF)	L_i (mH)	
0(4) – 20 mA measurement circuit (KL18, KL19)	30	125	1500	12	0	
KBus (ST1)	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to the certified Measuring System Type *400 X*/***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the KBus up to a peak voltage of 60 V.						

OXY 3400X-067:

	In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, with the following maximum values:					
	U_o (V)	I_o (mA)	P_o (mW)	C_o (µF)	L_o (mH)	
Oxygen measurement circuit (KL2, KL8, KL12, KL13, KL15)	10	12	16	1,5	1	Linear characteristic
Temperature measurement circuit (KL13, KL14)	5	1	1,5	4,4	5	Linear characteristic
Oxygen / Temperature measurement circuit (KL2, KL8, KL12, KL13, KL14, KL15)	10	13	17	1,4	1	Linear characteristic
Oxygen / ISM / Temperature measurement circuit (KL2, KL8, KL12, KL13, KL14, KL15, KL16, KL17)	10	33	42	1,3	1	Linear characteristic

OXY 3400X-067 (continued):

	In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, only for connection to intrinsically safe circuits, with the following maximum values:					
	U_i (V)	I_i (mA)	P_i (mW)	C_i (nF)	L_i (mH)	
0(4) – 20 mA measurement circuit (KL18, KL19)	30	125	1500	12	0	
KBus (ST1)	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to the certified Measuring System Type *400 X*/***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the KBus up to a peak voltage of 60 V.						

PHU 3400X-11*:

	In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, with the following maximum values:					
	U_o (V)	I_o (mA)	P_o (mW)	C_o (µF)	L_o (mH)	
pH measurement circuit (KL2, KL8, KL12)	10	20	25	1,5	1	Linear characteristic
Temperature measurement circuit (KL13, KL14, KL15)	5	10	12	6	1	Linear characteristic
pH / Temperature measurement circuit (KL2, KL8, KL12, KL13, KL14, KL15)	10	29	47	1,4	1	Linear characteristic
Supply circuit (KL18, KL19)	7,5	140	297	1,68	1	Linear characteristic
Interface circuit (KL16, KL17, KL18)	5	257	322	3,5	1,2	Linear characteristic
KBus (ST1)	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to the certified Measuring System Type *400 X*/***					
The measurement circuits are galvanically connected. The supply circuit and the interface circuit are galvanically connected. The measurement circuits and supply circuit / interface circuit and KBus are infallibly galvanically separated from each other up to a peak voltage of 60 V.						

CONDI 3400X-05*:

	In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, with the following maximum values:					
	U_o (V)	I_o (mA)	P_o (mW)	C_o (µF)	L_o (mH)	
Conductivity measurement circuit (KL1 … KL7)	7	45	26	1,4	12	Linear characteristic
Temperature measurement circuit (KL16, KL17, KL18, KL19)	5	9,1	12	3,26	16	Linear characteristic
Conductivity / Temperature measurement circuit (KL1 … KL7, KL16 ... KL19)	7	54,1	38	1,05	10	Linear characteristic
	Suitable for connection to the following sensors					
	Type:			Certificate number:		
	SE 655X, SE 656X			DMT 00 ATEX E 088 X		
	CLS 50-G...			DMT 99 ATEX E 075 X		
	ISC40S-...			KEMA 00ATEX1067 X		
	871EC-...			KEMA 00ATEX1160 X		
KBus (ST1)	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to the certified Measuring System Type *400 X*/***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from and from the KBus up to a peak voltage of 60 V.						

OUT 3400X-07* and PID 3400X-12*:

	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to intrinsically safe circuits, with the following maximum values per circuit:					
	U_i (V)	I_i (mA)	P_i (mW)	C_i (nF)	L_i (µH)	
Output circuits OUT 3400X-07*: I3 and I4 PID 3400X-12*: IV1 and IV2 (KL7, KL8 and KL9, KL10)	30	100	800	12	0	
Switch circuits OUT 3400X-07*: K5 ... K8 PID 3400X-12*: KV1,KV2, K9,K10 (KL 12, KL13; KL14, KL15; KL16, KL17; KL18, KL19)	30	100	800	12	0	
KBus (ST1)	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to the certified Measuring System Type *400 X*/***					
The output circuits are galvanically connected. The switching circuits are galvanically connected. The switch circuits and the output circuits are infallibly galvanically separated from each other and from and from the KBus up to a peak voltage of 60 V.						

COM** 3400X-08* and COM** 4400X-08*:

	In type of protection intrinsic safety Ex ia IIC/IIB, Ex ib IIC/IIB or Ex ia IIIC/IIIB, only for connection to a certified intrinsically safe circuit (e.g. a FISCO power supply), with the following maximum values:					
	U_i (V)	I_i (mA)	P_i (W)	C_i (nF)	L_i (µH)	
Bus connection (KL12, KL13, KL14)	17,5	380	5,32	5	10	FISCO Power Supply
	24	250	1,5	5	10	Linear Barrier
KBus (ST1)	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to the certified Measuring System Type *400 X* / ***					
The bus connection is infallibly galvanically separated from the KBus up to a peak voltage of 60 V.						

FIU 3400X-140-2:

	In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, with the following maximum values:					
	U_o (V)	I_o (mA)	P_o (mW)	C_o (µF)	L_o (mH)	
Supply / Interface circuit Memosens II and Memosens I (KL6, KL7, KL8, KL9, KL10 and KL11, KL12, KL13, KL14, KL15)	5	123	154	97,4	2	Linear characteristic
				C_i (µF)	L_i (µH)	
				2,6	0	
	Suitable for connection of Memosens measuring cable type CA/MS-***X** (BVS 09 ATEX E 083 X, BVS 15 ATEX E 141 X and IECEx BVS 15.0114X) or for connection of Memosens measuring cable type CYK 10-G**1 (BVS 04 ATEX E 121 X and IECEx BVS 11.0052X)					
	In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, with the following maximum values:					
	U_o (V)	I_o (mA)	P_o (mW)	C_o (µF)	L_o (mH)	
Supply circuit Unical / Uniclean (KL18, KL19)	7,5	115	216	10,9	2	Linear characteristic
	Suitable for connection to Retractable Probe Control Unit Type Unical 9000-X… or Type Uniclean 900-X… (KEMA 04ATEX1036 and IECEx DEK 22.0022).					
	In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, with the following maximum values:					
	U_o (V)	I_o (mA)	P_o (mW)	C_o (µF)	L_o (mH)	
Interface circuit Unical / Uniclean (KL16, KL17, KL18)	5	118	148	100	2	Linear characteristic
	Suitable for connection to Retractable Probe Control Unit Type Unical 9000-X… or Type Uniclean 900-X… (KEMA 04ATEX1036 and IECEx DEK 22.0022).					
KBus (ST1)	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to the certified Measuring System Type *400 X*/***					
The supply and interface circuits are galvanically connected and are infallibly galvanically separated from the KBus up to a peak voltage of 60 V.						

MS 3400X-16* and MS 4400X-16*:

	In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, with the following maximum values:					
	U_o (V)	I_o (mA)	P_o (mW)	C_o (µF)	L_o (mH)	
Supply / Interface circuit Memosens (KL1, KL2, KL3, KL4, KL5)	5	127	159	96,2	2	Linear characteristic
				C_i (µF)	L_i (µH)	
				3,8	2	
	Suitable for connection of Memosens measuring cable type CA/MS-***X** (BVS 09 ATEX E 083 X, BVS 15 ATEX E 141 X and IECEx BVS 15.0114X) or for connection of Memosens measuring cable type CYK 10-G**1 (BVS 04 ATEX E 121 X and IECEx BVS 11.0052X)					
	In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, with the following maximum values:					
	U_o (V)	I_o (mA)	P_o (mW)	C_o (µF)	L_o (mH)	
Supply / Interface circuit ISM (KL15, KL17)	8,3	9,3	20	7,2	400	Linear characteristic
	In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, only for connection to intrinsically safe circuits, with the following maximum values:					
	U_i (V)	I_i (mA)	P_i (mW)	C_i (nF)	L_i (mH)	
Current I-Input (KL7, KL9)	30	100	750	12	0	Linear characteristic
OK-input (KL11, KL13)	30	any	any	0	0	Linear characteristic
KBus (ST1)	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to the certified Measuring System Type *400 X*/***					
The supply and interface circuits are galvanically connected and are infallibly galvanically separated from and the KBus up to a peak voltage of 60 V.						

MSU 4400X-18*:

	In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, with the following maximum values:					
	U_o (V)	I_o (mA)	P_o (mW)	C_o (µF)	L_o (mH)	
Supply / Interface circuit Memosens (KL1, KL2, KL3, KL4, KL5) (KL6, KL7, KL8, KL9, KL10) (KL13, KL14, KL15, KL16, KL17)	5,1	130	166	81	2	Linear characteristic
				C_i (µF)	L_i (µH)	
				3,5	95	
	Suitable for connection of Memosens measuring cable type CA/MS-***X** (BVS 09 ATEX E 083 X, BVS 15 ATEX E 141 X and IECEx BVS 15.0114X) or for connection of Memosens measuring cable type CYK 10-G**1 (BVS 04 ATEX E 121 X and IECEx BVS 11.0052X)					
	In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, with the following maximum values:					
	U_o (V)	I_o (mA)	P_o (mW)	C_o (µF)	L_o (mH)	
Supply / Interface circuit Unical / Uniclean (KL11, KL17)	8,5	125	266	3,5	2	Linear characteristic
	Suitable for connection to Retractable Probe Control Unit Type Unical 9000-X… or Type Uniclean 900-X… (KEMA 04ATEX1036 and IECEx DEK 22.0022).					
Interface circuit Unical / Uniclean (KL14, KL15, KL16, KL17)	5,1	130	166	81	2	Linear characteristic
	Suitable for connection to Retractable Probe Control Unit Type Unical 9000-X… or Type Uniclean 900-X… (KEMA 04ATEX1036 and IECEx DEK 22.0022).					
	NOTE: If the Unical circuit is in use, Memosens on terminals 13 to 17 is not allowed					
	In type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, only for connection to intrinsically safe circuits, with the following maximum values:					
	U_i (V)	I_i (mA)	P_i (mW)	C_i (nF)	L_i (mH)	
Current I-Input (KL18, KL19)	30	100	750	11	0	Linear characteristic
KBus (ST1)	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to the certified Measuring System Type *400 X*/***					
The supply and interface circuits are galvanically connected and are infallibly galvanically separated from and the KBus up to a peak voltage of 60 V.						