The Art of Measuring. Knick

Protos 3400(X)
Unical 9000(X)
Uniclean 900(X)

Certificates

IECEx, ATEX, FM, CSA, CSAus, NEPSI

IECEx

Aktuelle Produktinformationen: www.knick.de
Latest product information: www.knick.de

Certificates
Protos® 3400

IECEx

IECEx Zertifikat
DEKRA DEK 11.0054

EG Baumusterprüfbescheinigung
EC-Type Examination Certificate
KEMA 03 ATEX 2530 Issue Number: 6

Certificate of Compliance
Certificate 1668976
Ex Division / Zone

Certificate of Conformity
Certificate 1555681

Certificate of Compliance
Project ID: 3023762
Ex Division / Zone

Certificate of Conformity, GYJ15.1402

Certificates
Unical® 9000, Uniclean® 900

EG Baumusterprüfbescheinigung
EC-Type Examination Certificate
KEMA 04 ATEX 1036
II 2(1) GD EEx ia IIC T4 T 70 °C

Certificate of Conformity, GYJ15.1403

Certificate Unical® 9000

Certificate of Compliance: Unical® 9000
Project ID: 3024483
Ex Division / Zone

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Download Certificates: www.knick.de

In diesem Dokument sind die Zertifikate vollständig inklusive aller Begleitdokumente angeführt. Aufgrund der Verpackungsgröße der Geräte können Detailzeichnungen nur stark verkleinert wiedergegeben werden. Die Originale finden Sie zum Herunterladen auf der Webseite unter dem entsprechenden Produkt.

The certificates are completely specified including all accompanying documents. Due to the packaging size of the devices, detail drawings had to be scaled down considerably.
The original documents are available for download on our website under the corresponding product description.

IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx DEK 11.0054 issue No.:0	Certificate history:
Status:	**Current**	
Date of Issue:	**2012-08-30** Page 1 of 4	
Applicant:	**Knick Elektronische Messgeräte GmbH & Co. KG** Beuckestrasse 22 D-14163 Berlin **Germany**	
Electrical Apparatus: *Optional accessory:*	**Modular Analyzing System Protos Type 3400 X */***	
Type of Protection:	**Ex e, Ex i, Ex m, Ex n, Ex t**	
Marking:	Ex e ib mb [ia Ga] IIC T4 Gb Ex tb [ia Da] IIIC T 70 °C Db IP6X Ex nA nC [ia Ga] IIC T4 Gc Ex tc [ia Da] IIIC T 70 °C Dc IP6X Ex nA nC [ic] IIC T4 Gc Ex tc [ic] IIIC T 70 °C Dc IP6X	

Approved for issue on behalf of the IECEx Certification Body: C.G. van Es

Position: Certification Manager

Signature: (for printed version)

Date: 2012-08-30

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2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

DEKRA Certification B.V.
Utrechtseweg 310
6812 AR Arnhem
The Netherlands

All testing, inspection, auditing and certification activities of the former KEMA Quality are an integral part of the DEKRA Certification Group.

DEKRA

IECEx Certificate of Conformity

Certificate No.: IECEx DEK 11.0054

Date of Issue: **2012-08-30** Issue No.: **0**

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

Manufacturing location(s):

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 electrical apparatus 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 : 2007-10 Edition: 5	Explosive atmospheres - Part 0:Equipment - General requirements
IEC 60079-11 : 2011-06 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-15 : 2010 Edition: 4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
IEC 60079-18 : 2009 Edition: 3	Explosive atmospheres Part 18: Equipment protection by encapsulation "m"
IEC 60079-26 : 2006 Edition: 2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga
IEC 60079-31 : 2008 Edition: 1	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure 't'
IEC 60079-7 : 2006-07 Edition: 4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical 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/ExTR11.0058/00

Quality Assessment Report:

DE/TUN/QAR06.0016/04

IECEx Certificate of Conformity

Certificate No.: IECEx DEK 11.0054

Date of Issue: **2012-08-30** Issue No.: **0**

Schedule

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

The Modular Analyzing System Protos Type 3400 X */*** is intended to record and process electrochemical data in the fluid analysis.
By using exchangeable measuring and interface modules, the system can be configured to provide the required measuring and control functions in the analytical techniques.

In the polished or polyester coated stainless steel housing with the power supply Protos Type BASE 3400 X */***, up to three measuring and interface modules can be mounted.

On the front panel of the door Protos Type FRONT 3400 X * - 01* the keyboard and LC-display is provided, on the rear panel a SmartMedia-Card slot is located.

CONDITIONS OF CERTIFICATION: NO

IECEx Certificate of Conformity

Certificate No.: IECEx DEK 11.0054

Date of Issue: **2012-08-30** Issue No.: **0**

EQUIPMENT(continued):

The complete System Protos 3400 X */*** consists of the power supplies, door and measuring and interface modules as shown in the attachment.

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

The door FRONT 3400 X */*** may be opened for a short time in order to change the SmartMedia-card.

The maximum surface temperature of the housing T 70 °C is based on a maximum ambient temperature of +50 °C.

Electrical data
See attachment.

Annexe: NL_DEK_ExTR11_0058_00 Attachment.pdf

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530 NL/DEK/ExTR11.0058/00,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

The complete System Protos 3400 X */*** consists of the following components:

Module:	Description:	Type of protection:			
		EPL Gb,Ga, IIC	EPL Db,Da, IIIC	EPL Gc, IIC	EPL Dc, IIIC
BASE 3400 X * / ***	Power Supply (100-230 V ac or 24 V ac/dc)	Ex e ib mb	Ex tb ib	Ex nA nC ic	Ex tc ic
FRONT 3400 X *-01*	Door	Ex ib	Ex tb ib	Ex nA nC ic	Ex tc ic
PH 3400X-03*	pH-Measurement Module	Ex ib [ia Ga]	Ex ib [ia Da]	Ex ic [ia Ga]	Ex ic [ia Da]
COND 3400X-04*	Conductivity Measurement Module	Ex ib [ia Ga]	Ex ib [ia Da]	Ex ic [ia Ga]	Ex ic [ia Da]
OXY 3400X-06*	Oxygen Concentration Measurement Module	Ex ib [ia Ga]	Ex ib [ia Da]	Ex ic [ia Ga]	Ex ic [ia Da]
PHU 3400X-11*	Unical 9000 X Communication Module	Ex ib [ia Ga]	Ex ib [ia Da]	Ex ic [ia Ga]	Ex ic [ia Da]
CONDI 3400X-05*	Inductive Conductivity Measurement Module	Ex ib [ia Ga]	Ex ib [ia Da]	Ex ic [ia Ga]	Ex ic [ia Da]
OUT 3400X-07*	Output Module (Analog and Switch Outputs)	Ex ib	Ex ib	Ex ic	Ex ic
PID 3400X-12*	PID Controller	Ex ib	Ex ib	Ex ic	Ex ic
COM** 3400X-08*	Interface (Profibus-PA and Foundation Fieldbus)	Ex ib [ia Ga]	Ex ib [ia Da]	Ex ic [ia Ga]	Ex ic [ia Da]
CO2 3400X-130	Carbon dioxide Concentration Measurement Module	Ex ib [ia Ga]	Ex ib [ia Da]	Ex ic [ia Ga]	Ex ic [ia Da]
FIU 3400X-140-2	Tripple RS 485 Module	Ex ib [ia Ga]	Ex ib [ia Da]	Ex ic [ia Ga]	Ex ic [ia Da]
MS 3400X-16*	Memosens Module	Ex ib [ia Ga]	Ex ib [ia Da]	Ex ic [ia Ga]	Ex ic [ia Da]

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530 NL/DEK/ExTR11.0058/00,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

Electrical data

The electrical data shows the values for the type of protection for ELP Gb, Ga which are also applicable for the other types of protection and EPL's

Protos Type BASE 3400 X * / ***:

Power supply circuit (terminals KL L, KL N, KL PE)	in type of protection increased safety Ex e, with the following maximum values: 100 ... 230 Vac (-15%, +10%), 15 VA, 48 ... 62 Hz or 24 V ac (-15%, +10%), 15 VA, 48 ... 62 Hz or 24 V dc (-15%, +20%), 8 W U_m = 253 V					
	in type of protection intrinsic safety Ex ib IIC, 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	
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, 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
Power supply, KBus (D-SUB, WE-Connector)	in type of protection intrinsic safety Ex ib IIC, only for connection to certified Modules Protos Type ***3400X-*** and the door Protos Type FRONT 3400 X */***					
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. The power supply and the KBus are galvanically connected.						

Protos Type FRONT 3400 X * / ***:

Power supply, KBus (BU2)	in type of protection intrinsic safety Ex ib IIC, only for connection to the certified Measuring System Protos Type 3400 X * / ***
SmartMedia-Card (SmartMedia-Card Slot)	in type of protection intrinsic safety Ex ib IIC, only for use with a SmartMedia-Card Type ZU 0543
The power supply and KBus are galvanically connected.	

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530
NL/DEK/ExTR11.0058/00,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

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

	in type of protection intrinsic safety Ex ia IIC, 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
Power supply and KBus (ST1)	in type of protection intrinsic safety Ex ib IIC, only for connection to the certified Measuring System Protos Type 3400 X * / ***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the power supply and the KBus up to a peak voltage of 60 V.						

Protos Module Type COND 3400X-04*:

	in type of protection intrinsic safety Ex ia IIC, 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
Power supply and KBus (ST1)	in type of protection intrinsic safety Ex ib IIC, only for connection to the certified Measuring System Protos Type 3400 X * / ***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the power supply and the KBus up to a peak voltage of 60 V.						

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530
NL/DEK/ExTR11.0058/00,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

Protos Module Type PH 3400X-035, PH 3400X-036 and CO2 3400X-130:

	in type of protection intrinsic safety Ex ia IIC, 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
Power supply and KBus (ST1)	in type of protection intrinsic safety Ex ib IIC, only for connection to the certified Measuring System Protos Type 3400 X * / ***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the power supply and the KBus up to a peak voltage of 60 V.						

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

	in type of protection intrinsic safety Ex ia IIC, 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
Power supply and KBus (ST1)	in type of protection intrinsic safety Ex ib IIC, only for connection to the certified Measuring System Protos Type 3400 X * / ***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the power supply and the KBus up to a peak voltage of 60 V.						

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530
NL/DEK/ExTR11.0058/00,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

Protos Module Type OXY 3400X-065 and OXY 3400X-066:

	in type of protection intrinsic safety Ex ia IIC, 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, 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	
Power supply and KBus (ST1)	in type of protection intrinsic safety Ex ib IIC, only for connection to the certified Measuring System Protos Type 3400 X * / ***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the power supply and the KBus up to a peak voltage of 60 V.						

Protos Module Type OXY 3400X-067:

	in type of protection intrinsic safety Ex ia IIC, 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

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530
NL/DEK/ExTR11.0058/00,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

	in type of protection intrinsic safety Ex ia IIC, 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	
Power supply and KBus (ST1)	in type of protection intrinsic safety Ex ib IIC, only for connection to the certified Measuring System Protos Type 3400 X * / ***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the power supply and the KBus up to a peak voltage of 60 V.						

Protos Module Type PHU 3400X-11*:

	in type of protection intrinsic safety Ex ia IIC, 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
Power supply and KBus (ST1)	in type of protection intrinsic safety Ex ib IIC, only for connection to the certified Measuring System Protos Type 3400 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 power supply / KBus are infallibly galvanically separated from each other up to a peak voltage of 60 V.						

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530
NL/DEK/ExTR11.0058/00,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

Protos Module Type CONDI 3400X-05*:

	in type of protection intrinsic safety Ex ia IIC, 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		
Power supply and KBus (ST1)	in type of protection intrinsic safety Ex ib IIC, only for connection to the certified Measuring System Protos Type 3400 X * / ***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the power supply and from the KBus up to a peak voltage of 60 V.						

Protos Module Type OUT 3400X-07* and PID 3400X-12*:

	in type of protection intrinsic safety Ex ib IIC, 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	
Power supply and KBus (ST1)	in type of protection intrinsic safety Ex ib IIC, only for connection to the certified Measuring System Protos Type 3400 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 the power supply and from the KBus up to a peak voltage of 60 V.						

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530
NL/DEK/ExTR11.0058/00,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

Protos Module Type COM 3400X-08*:

	in type of protection intrinsic safety Ex ia IIC/IIB resp. Ex ib IIC/IIB, 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)	FISCO Power Supply	17,5	380	5,32	5	10
	Linear Barrier	24	250	1,5	5	10
Power supply and KBus (ST1)	in type of protection intrinsic safety Ex ib IIC, only for connection to the certified Measuring System Protos Type 3400 X * / ***					
The bus connection is infallibly galvanically separated from the power supply and from the KBus up to a peak voltage of 60 V.						

Protos Module Type FIU 3400X-140-2:

	in type of protection intrinsic safety Ex ia IIC, 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
	suitable for connection of Memosens measuring cable type CA/MS-***X** (BVS 09 ATEX E 083 X) or for connection of Memosens measuring cable type CYK 10-G**1 (BVS 04 ATEX E 121 X)					
Supply circuit Unical (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).					
Interface circuit Unical (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).					
Power supply and KBus (ST1)	in type of protection intrinsic safety Ex ib IIC, only for connection to the certified Measuring System Protos Type 3400 X * / ***					
The supply and interface circuits are galvanically connected and are infallibly galvanically separated from the power supply and the KBus up to a peak voltage of 60 V.						

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530
NL/DEK/ExTR11.0058/00,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

Protos Module Type MS 3400X-16*:

	in type of protection intrinsic safety Ex ia IIC, 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
	suitable for connection of Memosens measuring cable type CA/MS-***X** (BVS 09 ATEX E 083 X) or for connection of Memosens measuring cable type CYK 10-G**1 (BVS 04 ATEX E 121 X)					
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, 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
Power supply and KBus (ST1)	in type of protection intrinsic safety Ex ib IIC, only for connection to the certified Measuring System Protos Type 3400 X * / ***					
The supply and interface circuits are galvanically connected and are infallibly galvanically separated from the power supply and the KBus up to a peak voltage of 60 V.						

IEC CB Test Certificate

IEC SYSTEM FOR CONFORMITY TESTING TO STANDARDS FOR SAFETY OF ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

Ref. Certificate No.
NL-7796

CB TEST CERTIFICATE

Issued by:	KEMA Quality B.V.		
Registration date:	2004-05-06		
Product:	Modular measuring system for liquid analysis		
Applicant:	Knick Elektronische Meßgeräte GmbH & Co	Beuckestraße 22 D-14163 Berlin	Germany
Manufacturer:	Knick Elektronische Meßgeräte GmbH & Co	Beuckestraße 22 D-14163 Berlin	Germany
Factory:	Knick Elektronische Meßgeräte GmbH & Co	Beuckestraße 22 D-14163 Berlin	Germany
Rating and principal characteristics:	24 to 230 V AC, DC, 45 to 65 Hz, 15 VA / 10W		
Trade mark (if any):	Knick		
Model/Type reference:	Protos 3400 S (Stainless steel enclosure) Protos 3400 C (Coated steel enclosure)		
Additional information:			
Sample of product tested to be in conformity with IEC:	61010-1(ed.1);am1;am2		
Test Report Ref. No:	2073445.50 H&S/ESG		

This CB Test Certificate is issued by the National Certification Body

KEMA Quality B.V.
Utrechtseweg 310
P.O. Box 5185
6802 ED Arnhem
The Netherlands

Signed by: A.G.H. Bergervoet

Date of issue: 2004-05-06

KEMA

1/1

Knick
Knick
Elektronische Messgeräte
GmbH & Co. KG
Beuckestr. 22
14163 Berlin
Deutschland

EU-Konformitätserklärung
EU Declaration of Conformity
Déclaration UE de Conformité

Dokument-Nr. / Document No. / No. document	**EU171115C** abrufbar unter / available at / disponible sous **www.knick.de**
Wir, die / We, / Nous,	**Knick Elektronische Messgeräte GmbH & Co. KG**
	erklären in alleiniger Verantwortung, dass dieses Produkt / diese Produkte, declare under our sole responsibility that the product / products, déclarons sous notre seule responsabilité que le produit / les produits,
Produktbezeichnung / Product identification / Désignation du produit	**Mess-System Protos® 3400 X** Protos® 3400 X S/VPW [A) B)], Protos® 3400 X S/24V [A) B)] Protos® 3400 X C/VPW [A) B)], Protos® 3400 X C/24V [A) B)] Module PH 3400X-035 [A) B)], Module COND 3400X-041 [A) B)], Module CONDI 3400X-051 [A) B)], Module OXY 3400X-067 [A) B)], Module OUT 3400X-071 [A) B)], Module COMPA 3400X-081 [A) B) C)], Module COMFF 3400X-085 [A) B) C)], Module PHU 3400X-110 [A) B)], Module PID 3400X-121 [A) B)], Module FIU 3400X-140-2 [A) B)], Module MS 3400X-160 [A) B)]

auf welche(s) sich diese Erklärung bezieht, mit allen wesentlichen Anforderungen der folgenden Richtlinien des Rates übereinstimmen:
to which this declaration relates is/are in conformity with all essential requirements of the Council Directives relating to:
auquel/auxquels se réfère cette déclaration est/sont conforme(s) aux exigences essentielles de la Directives du Conseil relatives à: *)

ATEX Richtlinie / ATEX directive / Directive ATEX Harmonisierte Normen / Harmonised Standards / Normes harmonisées	**2014/34/EU** (OJ L 96, 29.03.2014; p. 309-356) **EN 60079-0: 2012 + A11: 2013** **EN 60079-7: 2015** **EN 60079-11: 2012** **EN 60079-18: 2015** **EN 60079-31: 2014** EU-Baumusterprüfbescheinigung / EU Type Examination Certificate / Attestation d'examen UE de type **DEKRA Certification B.V., 6825 MJ Arnhem Niederlande, ExNB-No. 0344** **KEMA 03ATEX2530** Kennzeichnung / Designation / Marquage CE 0044 Ex **II 2(1) G Ex eb ib mb [ia Ga] IIC T4 Gb** **II 3(1) G Ex ec ib mb [ia Ga] IIC T4 Gc** **II 2(1) D Ex ib tb [ia Da] IIIC T 70 °C Db**
EMV-Richtlinie / EMC directive / Directive CEM Harmonisierte Normen / Harmonised Standards / Normes harmonisées	**2014/30/EU** (OJ L 96, 29.03.2014, p. 79-106) A) **EN 61326-1: 2013** B) **EN 61326-2-3: 2013** C) **EN 61326-2-5: 2013**
Niederspannungs-Richtlinie / Low-voltage directive / Directive basse tension Harmonisierte Normen / Harmonised Standards / Normes harmonisées	**2014/35/EU** (OJ L 96, 29.03.2014, p. 357–374) **EN 61010-1: 2010**
RoHS-Richtlinie / RoHS directive / Directive RoHS Harmonisierte Normen / Harmonised Standards / Normes harmonisées	**2011/65/EU** (OJ L 174, 01.07.2011, p. 88-110) **EN 50581: 2012**

*) Die Sicherheitshinweise sind zu beachten. Diese Erklärung gilt nur für Geräte mit o.g. Produktbezeichnung, die nach dem Ausstellungsdatum in Verkehr gebracht, bei denen keine unabgestimmten Änderungen vorgenommen und die unter Beachtung der Sicherheitshinweise in Betrieb genommen wurden.
The safety instructions must be observed. This declaration is only valid for products with the above-mentioned designation which have been placed on the market after the date of issue, which were not modified without prior consent, and which were put into operation in accordance with the safety instructions.
Il convient de respecter les consignes de sécurité. Cette déclaration s'applique uniquement aux appareils dont la désignation est citée plus haut, mis en circulation après la date de publication de ladite déclaration, qui n'ont subi aucune modification sans accord préalable et qui ont été mis en service en respectant les consignes de sécurité.

Ausstellungsort, -datum / Place and date of issue / Lieu et date d'émission	**Berlin, 15.11.17**

Knick Elektronische Messgeräte GmbH & Co. KG

ppa.
Jörg Giebson
Leiter Bereich Forschung und Entwicklung
Vice President R & D

093673

Knick
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GmbH & Co. KG
Beuckestr. 22
14163 Berlin
Deutschland

EU-Konformitätserklärung
EU Declaration of Conformity
Déclaration UE de Conformité

Dokument-Nr. / Document No. / No. document	**EU171115E** abrufbar unter / available at / disponible sous **www.knick.de**
Wir, die / We, / Nous,	**Knick Elektronische Messgeräte GmbH & Co. KG**
	erklären in alleiniger Verantwortung, dass dieses Produkt / diese Produkte, declare under our sole responsibility that the product / products, déclarons sous notre seule responsabilité que le produit / les produits,
Produktbezeichnung / Product identification / Désignation du produit	**Protos® Messmodul pH 3400X-033**

auf welche(s) sich diese Erklärung bezieht, mit allen wesentlichen Anforderungen der folgenden Richtlinien des Rates übereinstimmen: to which this declaration relates is/are in conformity with all essential requirements of the Council Directives relating to: auquel/auxquels se réfère cette déclaration est/sont conforme(s) aux exigences essentielles de la Directives du Conseil relatives à: *)

ATEX Richtlinie / ATEX directive / Directive ATEX	**2014/34/EU** (OJ L 96, 29.03.2014; p. 309-356)	EU-Baumusterprüfbescheinigung / EU Type Examination Certificate / Attestation d'examen UE de type **DEKRA Certification B.V., 6825 MJ Arnhem Niederlande, ExNB-No. 0344 KEMA 03ATEX2530**
Harmonisierte Normen / Harmonised Standards / Normes harmonisées	**EN 60079-0: 2012 + A11: 2013** **EN 60079-11: 2012**	Kennzeichnung / Designation / Marquage **CE 0044 Ex II 2(1) G Ex ib [ia Ga] IIC T4 Gb** **II 2(1) D Ex ib [ia Da] IIIC T 70 °C Db**
EMV-Richtlinie / EMC directive / Directive CEM	**2014/30/EU** (OJ L 96, 29.03.2014, p. 79-106)	
Harmonisierte Normen / Harmonised Standards / Normes harmonisées	**EN 61326-1: 2013** **EN 61326-2-3: 2013**	
Niederspannungs-Richtlinie / Low-voltage directive / Directive basse tension	**2014/35/EU** (OJ L 96, 29.03.2014, p. 357–374)	
Harmonisierte Normen / Harmonised Standards / Normes harmonisées	**EN 61010-1: 2010**	

*) Die Sicherheitshinweise sind zu beachten. Diese Erklärung gilt nur für Geräte mit o.g. Produktbezeichnung, die nach dem Ausstellungsdatum in Verkehr gebracht, bei denen keine unabgestimmten Änderungen vorgenommen und die unter Beachtung der Sicherheitshinweise in Betrieb genommen wurden.
The safety instructions must be observed. This declaration is only valid for products with the above-mentioned designation which have been placed on the market after the date of issue, which were not modified without prior consent, and which were put into operation in accordance with the safety instructions.
Il convient de respecter les consignes de sécurité. Cette déclaration s'applique uniquement aux appareils dont la désignation est citée plus haut, mis en circulation après la date de publication de ladite déclaration, qui n'ont subi aucune modification sans accord préalable et qui ont été mis en service en respectant les consignes de sécurité.

Ausstellungsort, -datum / Place and date of issue / Lieu et date d'émission	**Berlin, 15.11.2017**

Knick Elektronische Messgeräte GmbH & Co. KG

ppa.
Jörg Giebson
Leiter Bereich Forschung und Entwicklung
Vice President R & D

093687

Übersetzung, Originalsprache: Englisch

BESCHEINIGUNG

EU-Baumusterprüfung

(1) **EU-Baumusterprüfung**

(2) **Geräte oder Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen – Richtlinie 2014/34/EU**

(3) EU-Baumusterprüfbescheinigung Nummer: **KEMA 03ATEX2530** Ausgabe Nr.: **7**

(4) Produkt: **Modulares Analysenmeßsystem Protos Typ 3400 X */***

(5) Hersteller: **Knick Elektronische Messgeräte GmbH & Co. KG**

(6) Anschrift: **Beuckestrasse 22, 14163 Berlin, Deutschland**

(7) Dieses Produkt sowie die verschiedenen zulässigen Ausführungen ist in der Anlage zu dieser EU-Baumusterprüfbescheinigung und in den zugehörigen Unterlagen festgelegt.

(8) DEKRA Certification B.V. bescheinigt als benannte Stelle Nr. 0344 nach Artikel 17 der Richtlinie 2014/34/EU des Europäischen Parlaments und des Rates vom 26. Februar 2014, für dieses Produkt die Erfüllung der wesentlichen Sicherheits- und Gesundheitsanforderungen für den Entwurf und den Bau von Produkten zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie.

Die Ergebnisse der Prüfung sind im vertraulichen Prüfbericht Nr. NL/DEK/ExTR11.0058/01 festgelegt worden.

(9) Die wesentlichen Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit:

EN 60079-0 : 2012 + A11 : 2013 **EN 60079-7 : 2015** **EN 60079-11 : 2012**
EN 60079-18 : 2015 **EN 60079-31 : 2014**

außer in Bezug auf die in Punkt 18 der Anlage dargelegten Anforderungen.

(10) Falls das Zeichen "X" hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die Anwendung des Produkts in der Anlage zu dieser Bescheinigung hingewiesen.

(11) Diese EU-Baumusterprüfbescheinigung bezieht sich nur auf den Entwurf und den Bau des spezifizierten Produkts. Weitere Anforderungen der Richtlinie gelten für das Herstellungsverfahren und die Lieferung dieses Produkts. Diese sind von vorliegender Bescheinigung nicht abgedeckt.

(12) Die Kennzeichnung des Produkts umfasst Folgendes:

II 2(1) G **Ex eb ib mb [ia Ga] IIC T4 Gb**
II 3(1) G **Ex ec ib mb [ia Ga] IIC T4 Gc**
II 2(1) D **Ex ib tb [ia Da] IIIC T70 °C Db**

Datum der Bescheinigung: 4. September 2017

DEKRA Certification B.V.

L.G. van Schie
Certification Manager

Seite 1/3

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DEKRA

(13) **ANLAGE**

(14) **zur EU-Baumusterprüfbescheinigung KEMA 03ATEX2530** Ausgabe Nr. **7**

(15) **Beschreibung**

Das modular aufgebaute Analysenmesssystem Protos Typ 3400 X */*** dient zum Erfassen und Verarbeiten von elektrochemischen Größen in der Flüssigkeitsanalyse. Das System kann durch auswechselbare Mess- und Schnittstellenmodule den verschiedenen Mess- und Steueraufgaben in der Analysentechnik angepasst werden. Im polierten oder mit Polyester beschichteten Edelstahlgehäuse mit dem Netzteil Protos Typ BASE 3400 X */*** lassen sich bis zu drei Mess- und Schnittstellenmodule einsetzen. Auf der Vorderseite der Tür Protos Typ FRONT 3400 X * -01* befindet sich die Eingabetastatur und ein LC-Grafik-Display, innenseitig ist eine Steckvorrichtung für eine SmartMedia-Card vorhanden.

Das gesamte System Protos 3400 X */*** besteht aus den im Anhang aufgeführten Netzteilen, Tür und Mess- und Schnittstellenmodulen:

Umgebungstemperaturbereich: -20 °C bis +50 °C.

Die Tür FRONT 3400 X */*** darf kurzzeitig zum Wechsel der SmartMedia-Card geöffnet werden.

Die maximale Oberflächentemperatur des Gehäuses T70 °C ist auf eine maximale Umgebungstemperatur von +50 °C basiert.

Elektrische Daten

Siehe Anhang „Attachment“ in Englischer Sprache.

Errichtungshinweise

Die Betriebsanleitung des Herstellers ist genau zu befolgen um einen sicheren Betrieb zu gewährleisten.

(16) **Prüfbericht Nummer**

Nr. NL/DEK/ExTR11.0058/01.

(17) **Besondere Bedingungen**

Keine.

(18) **Wesentliche Sicherheits- und Gesundheitsanforderungen**

Von den Normen unter (9) abgedeckt.

(19) **Prüfungsunterlagen**

Wie erwähnt in Prüfbericht Nr. NL/DEK/ExTR11.0058/01.

DEKRA

(13) **ANLAGE**

(14) **zur EU-Baumusterprüfbescheinigung KEMA 03ATEX2530** Ausgabe Nr. **7**

(20) **Bescheinungsübersicht**

Ausgabe Nr. 1	-	203675100	Erstbescheinigung
Ausgabe Nr. 2	-	207155100	Revision zur Erstbescheinigung
Ausgabe Nr. 3	-	209795000	Neue Module OXY 3400X-067 und FIU 3400X-140
Ausgabe Nr. 4	-	213309200	Neues Modul FIU 3400X-140-2
Ausgabe Nr. 5	-	213597600	New module MS 3400X-16*
Ausgabe Nr. 6	-	213436200	Jetzt basiert auf NL/DEK/ExTR11.0058/00 und Kat 3 neu
Ausgabe Nr. 7	-	219438900	Normenänderung, Änderung der Zündschutzart Ex nA nC nach Ex ec mb

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530
NL/DEK/ExTR11.0058/01,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

DEKRA

The complete System Protos 3400 X */*** consists of the following components:

Module:	Description:	Type of protection:	
		IIC T4	IIIC T70°C
BASE 3400 X */***	Enclosure base Ex eb or tb Exchangeable power terminals Ex eb 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
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
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
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*	Memosens Module Knick proprietary KBus Ex ib Sensor terminals Ex ia	Ex ib [ia Ga] Gb	Ex ib [ia Da] Db

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530
NL/DEK/ExTR11.0058/01,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

DEKRA

Electrical data

Protos BASE 3400 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 Protos Modules ***3400X-*** and FRONT 3400 X */***					
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.						

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530
NL/DEK/ExTR11.0058/01,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

DEKRA

Protos 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 Protos BASE 3400 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

Protos Module 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 Protos Type 3400 X */***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the KBus up to a peak voltage of 60 V.						

Protos Module 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 Protos Type 3400 X */***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the KBus up to a peak voltage of 60 V.						

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530 NL/DEK/ExTR11.0058/01,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

DEKRA

Protos Modules 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 Protos Type 3400 X */***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the KBus up to a peak voltage of 60 V.						

Protos Module 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 Protos Type 3400 X */***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the KBus up to a peak voltage of 60 V.						

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530
NL/DEK/ExTR11.0058/01,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

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Protos Modules 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 Protos Type 3400 X */***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the KBus up to a peak voltage of 60 V.						

Protos Module 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

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530
NL/DEK/ExTR11.0058/01,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

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Protos Module 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 Protos Type 3400 X */***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the KBus up to a peak voltage of 60 V.						

Protos Module 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 Protos Type 3400 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.						

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530 NL/DEK/ExTR11.0058/01,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

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Protos Module 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 Protos Type 3400 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.						

Protos Modules 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 Protos Type 3400 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.						

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530 NL/DEK/ExTR11.0058/01,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

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Protos Module COM 3400X-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 Protos Type 3400 X * / ***					
The bus connection is infallibly galvanically separated from from the KBus up to a peak voltage of 60 V.						

Protos Module 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) or for connection of Memosens measuring cable type CYK 10-G**1 (BVS 04 ATEX E 121 X)					
	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 (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).					
	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 (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).					
KBus (ST1)	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to the certified Measuring System Protos Type 3400 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.						

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530 NL/DEK/ExTR11.0058/01,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

DEKRA

Protos Module MS 3400X-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) or for connection of Memosens measuring cable type CYK 10-G**1 (BVS 04 ATEX E 121 X)					
	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 Protos Type 3400 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.						

EU Declaration of Conformity

EU-Konformitätserklärung
EU Declaration of Conformity
Déclaration UE de Conformité

Knick
Elektronische Messgeräte
GmbH & Co. KG
Beuckestr. 22
14163 Berlin
Deutschland

Dokument-Nr. / Document No. / No. document: **EU171115C**

abrufbar unter / available at / disponible sous **www.knick.de**

Wir, die / We, / Nous, **Knick Elektronische Messgeräte GmbH & Co. KG**

erklären in alleiniger Verantwortung, dass dieses Produkt / diese Produkte,
declare under our sole responsibility that the product / products,
déclarons sous notre seule responsabilité que le produit / les produits,

Produktbezeichnung / Product identification / Désignation du produit

Mess-System Protos® 3400 X

Protos® 3400 X S/VPW [A) B)], Protos® 3400 X S/24V [A) B)]
Protos® 3400 X C/VPW [A) B)], Protos® 3400 X C/24V [A) B)]

Module PH	3400X-035	[A) B)],	Module COND	3400X-041	[A) B)],
Module CONDI	3400X-051	[A) B)],	Module OXY	3400X-067	[A) B)],
Module OUT	3400X-071	[A) B)],	Module COMPA	3400X-081	[A) B) C)],
Module COMFF	3400X-085	[A) B) C)],	Module PHU	3400X-110	[A) B)],
Module PID	3400X-121	[A) B)],	Module FIU	3400X-140-2	[A) B)],
Module MS	3400X-160	[A) B)]			

auf welche(s) sich diese Erklärung bezieht, mit allen wesentlichen Anforderungen der folgenden Richtlinien des Rates übereinstimmen:
to which this declaration relates is/are in conformity with all essential requirements of the Council Directives relating to:
auquel/auxquels se réfère cette déclaration est/sont conforme(s) aux exigences essentielles de la Directives du Conseil relatives à: *)

ATEX Richtlinie / ATEX directive / Directive ATEX

2014/34/EU
(OJ L 96, 29.03.2014; p. 309-356)

Harmonisierte Normen / Harmonised Standards / Normes harmonisées

EN 60079-0:	**2012 + A11: 2013**
EN 60079-7:	**2015**
EN 60079-11:	**2012**
EN 60079-18:	**2015**
EN 60079-31:	**2014**

EU-Baumusterprüfbescheinigung / EU Type Examination Certificate / Attestation d'examen UE de type
DEKRA Certification B.V.,
6825 MJ Arnhem Niederlande, ExNB-No. 0344
KEMA 03ATEX2530

Kennzeichnung / Designation / Marquage

CE 0044 Ex
II 2(1) G Ex eb ib mb [ia Ga] IIC T4 Gb
II 3(1) G Ex ec ib mb [ia Ga] IIC T4 Gc
II 2(1) D Ex ib tb [ia Da] IIIC T 70 °C Db

EMV-Richtlinie / EMC directive / Directive CEM

2014/30/EU
(OJ L 96, 29.03.2014, p. 79-106)

Harmonisierte Normen / Harmonised Standards / Normes harmonisées

A)	**EN 61326-1:**	**2013**
B)	**EN 61326-2-3:**	**2013**
C)	**EN 61326-2-5:**	**2013**

Niederspannungs-Richtlinie / Low-voltage directive / Directive basse tension

2014/35/EU
(OJ L 96, 29.03.2014, p. 357–374)

Harmonisierte Normen / Harmonised Standards / Normes harmonisées

EN 61010-1: 2010

RoHS-Richtlinie / RoHS directive / Directive RoHS

2011/65/EU
(OJ L 174, 01.07.2011, p. 88-110)

Harmonisierte Normen / Harmonised Standards / Normes harmonisées

EN 50581: 2012

*) Die Sicherheitshinweise sind zu beachten. Diese Erklärung gilt nur für Geräte mit o.g. Produktbezeichnung, die nach dem Ausstellungsdatum in Verkehr gebracht, bei denen keine unabgestimmten Änderungen vorgenommen und die unter Beachtung der Sicherheitshinweise in Betrieb genommen wurden.
The safety instructions must be observed. This declaration is only valid for products with the above-mentioned designation which have been placed on the market after the date of issue, which were not modified without prior consent, and which were put into operation in accordance with the safety instructions.
Il convient de respecter les consignes de sécurité. Cette déclaration s'applique uniquement aux appareils dont la désignation est citée plus haut, mis en circulation après la date de publication de ladite déclaration, qui n'ont subi aucune modification sans accord préalable et qui ont été mis en service en respectant les consignes de sécurité.

Ausstellungsort, -datum / Place and date of issue / Lieu et date d'émission: **Berlin, 15.11.17**

Knick Elektronische Messgeräte GmbH & Co. KG

ppa.
Jörg Glebson
Leiter Bereich Forschung und Entwicklung
Vice President R & D

093673

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Deutschland

EU-Konformitätserklärung
EU Declaration of Conformity
Déclaration UE de Conformité

Dokument-Nr. / Document No. / No. document	**EU171115E** abrufbar unter / available at / disponible sous **www.knick.de**
Wir, die / We, / Nous,	**Knick Elektronische Messgeräte GmbH & Co. KG**
	erklären in alleiniger Verantwortung, dass dieses Produkt / diese Produkte, declare under our sole responsibility that the product / products, déclarons sous notre seule responsabilité que le produit / les produits,
Produktbezeichnung / Product identification / Désignation du produit	**Protos® Messmodul pH 3400X-033**

auf welche(s) sich diese Erklärung bezieht, mit allen wesentlichen Anforderungen der folgenden Richtlinien des Rates übereinstimmen: to which this declaration relates is/are in conformity with all essential requirements of the Council Directives relating to: auquel/auxquels se réfère cette déclaration est/sont conforme(s) aux exigences essentielles de la Directives du Conseil relatives à: *)

ATEX Richtlinie / ATEX directive / Directive ATEX	**2014/34/EU** (OJ L 96, 29.03.2014; p. 309-356)	EU-Baumusterprüfbescheinigung / EU Type Examination Certificate / Attestation d'examen UE de type **DEKRA Certification B.V., 6825 MJ Arnhem Niederlande, ExNB-No. 0344 KEMA 03ATEX2530**
Harmonisierte Normen / Harmonised Standards / Normes harmonisées	**EN 60079-0: 2012 + A11: 2013** **EN 60079-11: 2012**	Kennzeichnung / Designation / Marquage **CE 0044 Ex II 2(1) G Ex ib [ia Ga] IIC T4 Gb** **II 2(1) D Ex ib [ia Da] IIIC T 70 °C Db**
EMV-Richtlinie / EMC directive / Directive CEM	**2014/30/EU** (OJ L 96, 29.03.2014, p. 79-106)	
Harmonisierte Normen / Harmonised Standards / Normes harmonisées	**EN 61326-1: 2013** **EN 61326-2-3: 2013**	
Niederspannungs-Richtlinie / Low-voltage directive / Directive basse tension	**2014/35/EU** (OJ L 96, 29.03.2014, p. 357–374)	
Harmonisierte Normen / Harmonised Standards / Normes harmonisées	**EN 61010-1: 2010**	

*) Die Sicherheitshinweise sind zu beachten. Diese Erklärung gilt nur für Geräte mit o.g. Produktbezeichnung, die nach dem Ausstellungsdatum in Verkehr gebracht, bei denen keine unabgestimmten Änderungen vorgenommen und die unter Beachtung der Sicherheitshinweise in Betrieb genommen wurden.
The safety instructions must be observed. This declaration is only valid for products with the above-mentioned designation which have been placed on the market after the date of issue, which were not modified without prior consent, and which were put into operation in accordance with the safety instructions.
Il convient de respecter les consignes de sécurité. Cette déclaration s'applique uniquement aux appareils dont la désignation est citée plus haut, mis en circulation après la date de publication de ladite déclaration, qui n'ont subi aucune modification sans accord préalable et qui ont été mis en service en respectant les consignes de sécurité.

Ausstellungsort, -datum / Place and date of issue / Lieu et date d'émission	**Berlin, 15.11.2017**

Knick Elektronische Messgeräte GmbH & Co. KG

ppa.
Jörg Giebsen
Leiter Bereich Forschung und Entwicklung
Vice President R & D

093687

CERTIFICATE

EU-Type Examination

(1)

(2) **Equipment or protective systems intended for use in potentially explosive atmospheres - Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number: **KEMA 03ATEX2530** Issue Number: **7**

(4) Product: **Modular Analyzing System Protos Type 3400 X */***

(5) Manufacturer: **Knick Elektronische Messgeräte GmbH & Co. KG**

(6) Address: **Beuckestrasse 22, 14163 Berlin, Germany**

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) DEKRA Certification B.V., Notified Body number 0344 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential test report number NL/DEK/ExTR11.0058/01.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0 : 2012 + A11 : 2013 **EN 60079-7 : 2015** **EN 60079-11 : 2012**
EN 60079-18 : 2015 **EN 60079-31 : 2014**

except in respect of those requirements listed at item 18 of the Schedule.

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:

II 2(1) G	**Ex eb ib mb [ia Ga] IIC T4 Gb**
II 3(1) G	**Ex ec ib mb [ia Ga] IIC T4 Gc**
II 2(1) D	**Ex ib tb [ia Da] IIIC T70 °C Db**

Date of certification: 4 September 2017

DEKRA Certification B.V.

L.G. van Schie
Certification Manager

Page 1/3

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(13) **SCHEDULE**

(14) **to EU-Type Examination Certificate KEMA 03ATEX2530** Issue No. **7**

(15) **Description**

The Modular Analyzing System Protos Type 3400 X */*** is intended to record and process electrochemical data in the fluid analysis. By using exchangeable measuring and interface modules, the system can be configured to provide the required measuring and control functions in the analytical techniques. In the polished or polyester coated stainless steel housing with the power supply Protos Type BASE 3400 X */***, up to three measuring and interface modules can be mounted. On the front panel of the door Protos Type FRONT 3400 X * - 01* the keyboard and LC-display is provided, on the rear panel a SmartMedia-Card slot is located.

The complete System Protos 3400 X */*** consists of the power supplies, door and measuring and interface modules as shown in the attachment.

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

The door FRONT 3400 X */*** may be opened for a short time in order to change the SmartMedia-card.

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

Electrical data

See attachment.

Installation instructions

The instructions provided with the product shall be followed in detail to assure safe operation.

(16) **Report Number**

No. NL/DEK/ExTR11.0058/01.

(17) **Specific conditions of use**

None.

(18) **Essential Health and Safety Requirements**

Covered by the standards listed at item (9).

(19) **Test documentation**

As listed in Report No. NL/DEK/ExTR11.0058/01.

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(13) **SCHEDULE**

(14) **to EU-Type Examination Certificate KEMA 03ATEX2530** Issue No. **7**

(20) **Certificate history**

Issue 1 -	203675100	initial certificate
Issue 2 -	207155100	revision to initial certificate
Issue 3 -	209795000	new modules OXY 3400X-067 and FIU 3400X-140
Issue 4 -	213309200	new module FIU 3400X-140-2
Issue 5 -	213597600	new module MS 3400X-16*
Issue 6 -	213436200	now based on NL/DEK/ExTR11.0058/00 and Cat 3 new
Issue 7 -	219438900	standards upgrade, change type of protection Ex nA nC to Ex ec mb

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530
NL/DEK/ExTR11.0058/01,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

The complete System Protos 3400 X */*** consists of the following components:

Module:	Description:	Type of protection:	
		IIC T4	IIIC T70°C
BASE 3400 X */***	Enclosure base Ex eb or tb Exchangeable power terminals Ex eb 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
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
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
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*	Memosens Module Knick proprietary KBus Ex ib Sensor terminals Ex ia	Ex ib [ia Ga] Gb	Ex ib [ia Da] Db

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NL/DEK/ExTR11.0058/01,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

Electrical data

Protos BASE 3400 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 Protos Modules ***3400X-*** and FRONT 3400 X */***					
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.						

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530
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Test item: Modular Analyzing System Protos Type 3400 X */***

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Protos 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 Protos BASE 3400 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

Protos Module 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 Protos Type 3400 X */***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the KBus up to a peak voltage of 60 V.						

Protos Module 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 Protos Type 3400 X */***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the KBus up to a peak voltage of 60 V.						

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530
NL/DEK/ExTR11.0058/01,
Applicant's name: Knick Elektronische Messgerate GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

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Protos Modules 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 Protos Type 3400 X */***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the KBus up to a peak voltage of 60 V.						

Protos Module 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 Protos Type 3400 X */***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the KBus up to a peak voltage of 60 V.						

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530 NL/DEK/ExTR11.0058/01,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

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Protos Modules 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 Protos Type 3400 X */***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the KBus up to a peak voltage of 60 V.						

Protos Module 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

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530 NL/DEK/ExTR11.0058/01,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

Protos Module 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 Protos Type 3400 X */***					
The measurement circuits are galvanically connected and are infallibly galvanically separated from the KBus up to a peak voltage of 60 V.						

Protos Module 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 Protos Type 3400 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.						

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530
NL/DEK/ExTR11.0058/01,
Applicant's name: Knick Elektronische Messgeräte GmbH & Co. KG
Test item: Modular Analyzing System Protos Type 3400 X */***

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Protos Module 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 Protos Type 3400 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.						

Protos Modules 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 Protos Type 3400 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.						

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530
NL/DEK/ExTR11.0058/01,
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Protos Module COM 3400X-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 Protos Type 3400 X * / ***					
The bus connection is infallibly galvanically separated from from the KBus up to a peak voltage of 60 V.						

Protos Module 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) or for connection of Memosens measuring cable type CYK 10-G**1 (BVS 04 ATEX E 121 X)					
	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 (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).					
	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 (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).					
KBus (ST1)	In type of protection intrinsic safety Ex ib IIC or Ex ib IIIC, only for connection to the certified Measuring System Protos Type 3400 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.						

Attachment to: IECEx DEK 11_0054, KEMA 03ATEX2530
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Test item: Modular Analyzing System Protos Type 3400 X */***

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Protos Module MS 3400X-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) or for connection of Memosens measuring cable type CYK 10-G**1 (BVS 04 ATEX E 121 X)					
	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 Protos Type 3400 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.						

Knick
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EU-Konformitätserklärung
EU Declaration of Conformity
Déclaration UE de Conformité

Dokument-Nr. / Document No. / No. document	**EU171115A**

abrufbar unter / available at / disponible sous **www.knick.de**

Wir, die / We, / Nous,	**Knick Elektronische Messgeräte GmbH & Co. KG**
	erklären in alleiniger Verantwortung, dass dieses Produkt / diese Produkte, declare under our sole responsibility that the product / products, déclarons sous notre seule responsabilité que le produit / les produits,
Produktbezeichnung / Product identification / Désignation du produit	**Unical® 9000-X...** **Uniclean® 900-X...**

auf welche(s) sich diese Erklärung bezieht, mit allen wesentlichen Anforderungen der folgenden Richtlinien des Rates übereinstimmen: to which this declaration relates is/are in conformity with all essential requirements of the Council Directives relating to: auquel/auxquels se réfère cette déclaration est/sont conforme(s) aux exigences essentielles de la Directives du Conseil relatives à: *)

ATEX Richtlinie / ATEX directive / Directive ATEX	**2014/34/EU** (OJ L 96, 29.03.2014, p. 309-356)	EU-Baumusterprüfbescheinigung / EU Type Examination Certificate / Attestation d'examen UE de type **DEKRA Certification B.V., 6825 MJ Arnhem Niederlande, ExNB-No. 0344 KEMA 04ATEX1036** Kennzeichnung / Designation / Marquage **CE 0044 Ex II 2 (1) G Ex ia [ia Ga] IIC T4 Gb II 2 (1) D Ex ia [ia Da] IIIC T130°C Db**
Harmonisierte Normen / Harmonised Standards / Normes harmonisées	**EN 60079-0: 2012 + A11:2013** **EN 60079-11: 2012**	
EMV-Richtlinie / EMC directive / Directive CEM	**2014/30/EU** (OJ L 96, 29.03.2014, p. 79-106)	
Harmonisierte Normen / Harmonised Standards / Normes harmonisées	**EN 61326-1: 2013**	
RoHS-Richtlinie / RoHS directive / Directive RoHS	**2011/65/EU** (OJ L 174, 01.07.2011, p. 88-110)	
Harmonisierte Normen / Harmonised Standards / Normes harmonisées	**EN 50581: 2012**	

*) Die Sicherheitshinweise sind zu beachten. Diese Erklärung gilt nur für Geräte mit o.g. Produktbezeichnung, die nach dem Ausstellungsdatum in Verkehr gebracht, bei denen keine unabgestimmten Änderungen vorgenommen und die unter Beachtung der Sicherheitshinweise in Betrieb genommen wurden.
The safety instructions must be observed. This declaration is only valid for products with the above-mentioned designation which have been placed on the market after the date of issue, which were not modified without prior consent, and which were put into operation in accordance with the safety instructions.
Il convient de respecter les consignes de sécurité. Cette déclaration s'applique uniquement aux appareils dont la désignation est citée plus haut, mis en circulation après la date de publication de ladite déclaration, qui n'ont subi aucune modification sans accord préalable et qui ont été mis en service en respectant les consignes de sécurité.

Ausstellungsort, -datum / Place and date of issue / Lieu et date d'émission	**Berlin, 15.11.2017**

Knick Elektronische Messgeräte GmbH & Co. KG

ppa.
Jörg Giebson
Leiter Bereich Forschung und Entwicklung
Vice President R & D

093672

KEMA

(1) **EG-BAUMUSTERPRÜFBESCHEINIGUNG**

(2) **Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen - Richtlinie 94/9/EG**

(3) EG-Baumusterprüfbescheinigung Nummer: **KEMA 04ATEX1036** Ausgabe Nummer: **2**

(4) Gerät: **Wechselsondensteuerung Typ Unical 9000-X... und Typ Uniclean 900-X...**

(5) Hersteller: **Knick Elektronische Messgeräte GmbH & Co. KG**

(6) Anschrift: **Beuckestrasse 22, D-14163 Berlin, Deutschland**

(7) Die Bauart dieses Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser EG-Baumusterprüfbescheinigung und in den zugehörigen Unterlagen festgelegt.

(8) KEMA Quality B.V. bescheinigt als benannte Stelle Nr. 0344 nach Artikel 9 der Richtlinie 94/9/EG des Rates der Europäischen Gemeinschaften vom 23. März 1994, die Erfüllung der grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Geräten und Schutzsystemen zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie.

Die Ergebnisse der Prüfung sind im vertraulichen Prüfbericht Nr. 2107128 festgelegt worden.

(9) Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit:

EN 50014 : 1997 + A1, A2 **EN 50020 : 2002**
EN 50281-1-1 : 1998 + A1 **EN 50284 : 1999**

(10) Falls das Zeichen "X" hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Gerätes in der Anlage zu dieser Bescheinigung hingewiesen.

(11) Diese EG-Baumusterprüfbescheinigung bezieht sich nur auf Konstruktion, Überprüfung und Tests des spezifizierten Gerätes in Übereinstimmung mit Richtlinie 94/9/EG. Weitere Anforderungen der Richtlinie gelten für das Herstellungsverfahren und die Lieferung dieses Gerätes. Diese sind von vorliegender Bescheinigung nicht abgedeckt.

(12) Die Kennzeichnung des Gerätes muss die folgenden Angaben enthalten:

II 2(1) GD EEx ia IIC T4 T 70 °C

Diese Bescheinigung ist erstellt am 22. Juni 2007 und ist, soweit zutreffend, zu revidieren vor dem Datum der Beendigung der Annahme der Konformitätsvermutung (einer) der oben erwähnten Normen, wie angekündigt im Amtsblatt der Europäischen Union.

KEMA Quality B.V.

T. Pijpker
Certification Manager

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Experience you can trust.

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(13) **ANLAGE**

(14) **zur EG-Baumusterprüfbescheinigung KEMA 04ATEX1036** Ausgabe Nr. **2**

(15) **Beschreibung**

Die Wechselsondensteuerung Typ Unical 9000-X... und Typ Uniclean 900-X... dient hauptsächlich zur Steuerung der Wechselsonde Typ Ceramat WA 1**-X... und wird selber durch das Modulare Analysenmeßsystem Protos Typ 3400 X */*** oder ein ähnliches Meßsystem oder eine SPS gesteuert. Die Wechselsondensteuerung Typ Uniclean 900-X... ist identisch an Typ Unical 9000-X... aber mit vereinfachter Software und Pneumatik, ohne Zusatzventil und mit nur einem Steckplatz am Medienadapter. Die Wechselsondensteuerung besteht aus einem Schaltschrank mit der eingebauten Steuerelektronik und der zugehörigen pneumatischen/hydraulischen Beschaltung, dem Medienanschluß zum Betreiben der Wechselsonde, dem externen Medienadapter für maximal drei Dosierpumpen mit Behältern für Puffer- und Reinigungsflüssigkeiten und dem externen Service-Schalter für Service und Messen.

Umgebungstemperaturbereich: +2 °C bis +50 °C.

Schutzart des Gehäuses: IP 65 nach EN 60529.

Die maximale Oberflächentemperatur des Gehäuses T 70 °C ist basiert auf eine maximale Umgebungstemperatur von +50 °C.

Elektrische Daten

Hilfsenergiestromkreis extern (KL19, KL21):
in Zündschutzart Eigensicherheit EEx ia IIC, nur zum Anschluß an eigensichere Stromkreise, mit folgenden Höchstwerten:
U_i = 30 V; P_i = 1 W; C_i = 0 µF; L_i = 0 mH
oder
Hilfsenergiestromkreis (KL19, KL20):
in Zündschutzart Eigensicherheit EEx ia IIC, nur zum Anschluß an das bescheinigte Protos Modul Typ PHU 3400 X - 11* oder Typ FIU 3400 X - 14*

Not-Aus-Stromkreis (KL15, KL16):
in Zündschutzart Eigensicherheit EEx ia IIC, mit folgenden Höchstwerten:
U_o = 30 V; I_o = 146 mA; P_o = 1 W; C_o = 66 nF; L_o = 1 mH

Schnittstelle RS485 (KL17, KL18, KL19):
in Zündschutzart Eigensicherheit EEx ia IIC, mit folgenden Höchstwerten:
U_i/U_o = 5 V; I/I_o = 257 mA; R_i = 19,5 Ω; C_i = 0 µF; L_i = 0 mH; C_o = 3,5 µF; L_o = 1,2 mH
oder
in Zündschutzart Eigensicherheit EEx ia IIC, nur zum Anschluß an das bescheinigte Protos Modul Typ PHU 3400 X - 11* oder Typ FIU 3400 X - 14*

PLS-Ausgänge ML1, ML2, ML3 (KL31, KL32, KL33, KL34):
in Zündschutzart Eigensicherheit EEx ia IIC, nur zum Anschluß an eigensichere Stromkreise, mit folgenden Höchstwerten je Stromkreis:
U_i = 30 V; I_i = 100 mA; P_i = 800 mW; C_i = 12 nF; L_i = 0 mH

PLS-Eingänge PRG1, PRG2, PRG3 (KL36...KL39) A/M (KL40, KL41) M/S (KL42, KL43):
in Zündschutzart Eigensicherheit EEx ia IIC, nur zum Anschluß an eigensichere Stromkreise, mit folgenden Höchstwerten je Stromkreis:
U_i = 30 V; C_i = 0 µF; L_i = 0 mH
Scheitelwert der Nennspannung bei Spannungsaddition: 60V. Stromaddition ist nicht wirksam.

KEMA

(13) **ANLAGE**

(14) **zur EG-Baumusterprüfbescheinigung KEMA 04ATEX1036** Ausgabe Nr. **2**

Leckage-Stromkreis (KL1, KL2):
in Zündschutzart Eigensicherheit EEx ia IIC, mit folgenden Höchstwerten:
U_o = 5 V; I_o = 8 mA; P_o = 10 mW; C_o = 5 µF; L_o = 2 mH; Kennlinie linear

Service-Schalter Stromkreis (KL8, KL9, KL10, KL11):
in Zündschutzart Eigensicherheit EEx ia IIC, nur zum Anschluß an den Service-Schalter, zugehörig zur Wechselsondensteuerung Kabellänge < 100 m.

Pumpenstromkreise (KL45, KL46, KL47, KL48 KL49, KL50, KL51):
in Zündschutzart Eigensicherheit EEx ia IIC, nur zum Anschluß an Medienadapter/Dosierpumpen, zugehörig zur Wechselsondensteuerung Kabellänge < 100 m.

Sondenstromkreise (KL12, KL13, KL14):
in Zündschutzart Eigensicherheit EEx ia IIC, nur zum Anschluß an Medienanschlüsse, zugehörig zur Wechselsondensteuerung Kabellänge < 100 m.

Der Hilfsenergiestromkreis extern, der Hilfsenergiestromkreis, der Not-Aus-Stromkreis, die Schnittstelle RS485, der Service-Schalter-Stromkreis, die Pumpenstromkreise und die Sondenstromkreise sind miteinander und mit dem Potentialausgleich PA verbunden.
Die PLS-Ausgänge ML1, ML2 und ML3 sind miteinander verbunden.
Die PLS-Eingänge PRG1, PRG2 und PRG3 sind miteinander verbunden.
Die PLS-Eingänge PRG1, PRG2, PRG3 gegen den PLS-Eingang A/M und gegen den PLS-Eingang M/S sind funktionsmäßig galvanisch getrennt, aber im Sinne der Eigensicherheit miteinander verbunden.
Die PLS-Ausgänge und die PLS-Eingänge und der Leckage-Stromkreis sind gegeneinander und gegen die übrigen Stromkreise bis zu einem Scheitelwert der Nennspannung von 60 V sicher galvanisch getrennt.

Errichtungshinweise

Die Flaschen für die Puffer- und Reinigungsflüssigkeiten sind in staubexplosionsgefährdeten Bereichen so zu errichten, daß keine Explosionsgefahr durch elektrostatische Entladung entsteht. Die Flaschen müssen beispielsweise innerhalb eines geerdeten, elektrostatisch leitfähigen Behälters oder Schrankes errichtet werden oder mit geerdeten, elektrostatisch leitfähigen Materialien ummantelt werden.

Stückprüfungen

Jeder Transformator TR2, TR3, TR4 und TR5 muss nach EN 50020, Abschnitt 11.2, mit einer Spannung nach Tabelle 9 während 10 Sekunden geprüft werden.

(16) **Prüfbericht**

KEMA Nr. 2107128.

(17) **Besondere Bedingungen**

Keine.

(18) **Grundlegende Sicherheits- und Gesundheitsanforderungen**

Von den Normen unter (9) abgedeckt.

(19) **Prüfungsunterlagen**

Wie erwähnt in Prüfbericht Nr. 2107128.

KEMA

Translation, original language: German

(1) # EC-TYPE EXAMINATION CERTIFICATE

(2) **Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC**

(3) EC-Type Examination Certificate Number: **KEMA 04ATEX1036** Issue Number: **2**

(4) Equipment: **Retractable Probe Control Unit Type Unical 9000-X... and Type Uniclean 900-X...**

(5) Manufacturer: **Knick Elektronische Messgeräte GmbH & Co. KG**

(6) Address: **Beuckestrasse 22, D-14163 Berlin, Germany**

(7) This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) KEMA Quality B.V., notified body number 0344 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the directive.

The examination and test results are recorded in confidential test report number 2107128.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014 : 1997 + A1, A2 **EN 50020 : 2002**
EN 50281-1-1 : 1998 + A1 **EN 50284 : 1999**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment according to the Directive 94/9/EC. Further requirements of the directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment shall include the following:

II 2(1) GD EEx ia IIC T4 T 70 °C

This certificate is issued on 22 June 2007 and, as far as applicable, shall be revised before the date of cessation of presumption of conformity of (one of) the standards mentioned above as communicated in the Official Journal of the European Union.

KEMA Quality B.V.

T. Pijpker
Certification Manager

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PRODUCTS RvA C 001

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(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 04ATEX1036** Issue No. **2**

(15) **Description**

The Retractable Probe Control Unit Type Unical 9000-X... and Type Uniclean 900-X... is mainly intended for control of Retractable Probe Type Ceramat WA 1**-X... and is controlled by the Modular Analyzing System Protos Type 3400 X */*** or similar measuring system or by a DCS. The Retractable Probe Control Unit Type Uniclean 900-X... is identical to Type Unical 9000-X... but with simplified software and pneumatics, without the Service switch circuit, without valve and with only one position for the Media adapter. The Retractable Probe Control Unit consists of a control cabinet with built-in control electronics and the associated pneumatic/hydraulic circuits, the process connection for operation of the retractable probe, the external media adapter for a maximum of three dosing pumps with containers for the buffer and cleaning solutions and the external Service Switch for service and measurement.

Ambient temperature range: +2 °C to +50 °C.

Degree of ingress protection: IP 65 according to EN 60529.

The maximum surface temperature of the housing T 70 °C is based on a maximum ambient temperature of +50 °C.

Electrical data

Auxiliary external power supply (KL19, KL21):
in type of protection intrinsic safety EEx ia IIC, only for connection to intrinsically safe circuits, with the following maximum values:
U_i = 30 V; P_i = 1 W; C_i = 0 µF; L_i = 0 mH
or
Auxiliary power supply (KL19, KL20):
in type of protection intrinsic safety EEx ia IIC, only for connection to the certified Protos Module Type PHU 3400 X - 11* or Type FIU 3400 X - 14*

Emergency Shutdown circuit (KL15, KL16):
in type of protection intrinsic safety EEx ia IIC, with the following maximum values:
U_o = 30 V; I_o = 146 mA; P_o = 1 W; C_o = 66 nF; L_o = 1 mH

Interface RS485 (KL17, KL18, KL19):
in type of protection intrinsic safety EEx ia IIC, with the following maximum values:
U_i/U_o = 5 V; I_i/I_o = 257 mA; R_i = 19,5 Ω; C_i = 0 µF; L_i = 0 mH; C_o = 3,5 µF; L_o = 1,2 mH
or
in type of protection intrinsic safety EEx ia IIC, only for connection to the certified Protos Module Type PHU 3400 X - 11* or Type FIU 3400 X - 14*

DCS Outputs ML1, ML2, ML3 (KL31, KL32, KL33, KL34):
in type of protection intrinsic safety EEx ia IIC, only for connection to intrinsically safe circuits, with the following maximum values per circuit:
U_i = 30 V; I_i = 100 mA; P_i = 800 mW; C_i = 12 nF; L_i = 0 mH

DCS Inputs PRG1, PRG2, PRG3 (KL36...KL39) A/M (KL40, KL41) M/S (KL42, KL43):
in type of protection intrinsic safety EEx ia IIC, only for connection to intrinsically safe circuits, with the following maximum values per circuit:
U_i = 30 V; C_i = 0 µF; L_i = 0 mH

Peak voltage value in case of voltage addition: 60 V. No current addition.

(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 04ATEX1036** Issue No. **2**

Leakage circuit (KL1, KL2):
in type of protection intrinsic safety EEx ia IIC, with the following maximum values:
U_o = 5 V; I_o = 8 mA; P_o = 10 mW; C_o = 5 µF; L_o = 2 mH; Linear characteristic

Service Switch circuit (KL8, KL9, KL10, KL11):
in type of protection intrinsic safety EEx ia IIC, only for connection to the Service Switch, which is part of the Retractable Probe Control Unit Cable length < 100 m.

Pump circuits (KL45, KL46, KL47, KL48 KL49, KL50, KL51):
in type of protection intrinsic safety EEx ia IIC, only for connection to the media adapter / dosing pumps, which are part of the Retractable Probe Control Unit Cable length < 100 m.

Probe circuits (KL12, KL13, KL14):
in type of protection intrinsic safety EEx ia IIC, only for connection to process connections which are part of the Retractable Probe Control Unit Cable length < 100 m.

The external auxiliary power supply circuit, the auxiliary power supply circuit, the emergency shutdown circuit, the interface RS485, the service switch circuit, the pump circuits and the probe circuits are connected with each other and to the potential equalization PE.
The DCS outputs ML1, ML2 and ML3 are connected with each other.
The DCS inputs PRG1, PRG2 and PRG3 are connected with each other.
The DCS inputs PRG1, PRG2, PRG3 are functionally galvanically separated from the DCS input A/M and from the DCS input M/S, but are connected from an intrinsic safety point of view.
The DCS outputs and the DCS inputs and the leakage circuit are infallibly galvanically separated from each other and from all other circuits up to a peak voltage of 60 V.

Installation instructions

In areas endangered by the presence of combustible dust, the containers for the buffer and cleaning solutions are to be installed such, that a risk of explosion by electrostatic discharge is avoided. The containers are e.g. to be installed inside an earthed, electrostatically conductive vessel or cabinet or must be surrounded by earthed, electrostatically conductive materials.

Routine tests

Each transformer TR2, TR3, TR4 and TR5 must be tested according to EN 50020, clause 11.2, with a test voltage according to Table 9 during 10 seconds.

(16) **Test Report**

KEMA No. 2107128.

(17) **Special conditions for safe use**

None.

(18) **Essential Health and Safety Requirements**

Assured by compliance with the standards listed at (9).

(19) **Test documentation**

As listed in Test Report No. 2107128.

CSA INTERNATIONAL

Certificate of Compliance

Certificate: 1668976 **Master Contract:** 188909

Project: 2353624 **Date Issued:** October 14, 2010

Issued to: **Knick Elektronische Messgeräte GmbH & Co. KG**
Beuckestrasse 22
D-14163 Berlin
GERMANY
Attention: Mr. J. Cammin

The products listed below are eligible to bear the CSA Mark shown

Eric Giusti
Issued by: Eric Giusti

PRODUCTS

CLASS 2258 03 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe and Non-Incendive Systems - For Hazardous Locations

NI, Class I, Division 2, Groups A, B, C and D, with IS circuits extending into Division 1; Enclosure 4X;
or
AIS, Class I, Zone 1, Ex me ib [ia] IIC T4; Enclosure 4X;
or
NI, Class I, Zone 2, Ex nA [ia] IIC; Enclosure 4X;

Ambient temperature –20 °C … +50 °C

The Protos Measuring System consists of the following units:

Certificate: 1668976 **Master Contract:** 188909

Project: **2353624** **Date Issued: October 14, 2010**

CSA INTERNATIONAL

Power Supply Type BASE 3400 X*/***

Model code:	Description:
BASE 3400 XS/VPW	VariPower 100–230 Vac power supply, enclosure made of polished stainless steel
BASE 3400 XS/24V	24 V ac/dc power supply, polished stainless steel enclosure
BASE 3400 XC/VPW	VariPower 100–230 Vac power supply, enclosure made of polyester coated steel
BASE 3400 XC/24V	24 V ac/dc power supply, enclosure made of polyester coated steel

Door Type FRONT 3400 X*-01*

Model code:	Description:
FRONT 3400 XS-015	Door, made of polished stainless steel
FRONT 3400 XC-015	Door, made of coated steel

Module Type PH 3400 X-03*

Model code:	Description:
PH 3400 X-032	pH measurement with glass electrodes or ISFET sensors
PH 3400 X-033	pH measurement with Pfaudler differential probes
PH 3400 X-035	pH measurement with pH glass electrodes or pH-ISFET sensors
PH 3400 X-036	pH measurement with Pfaudler differential probes

Module Type CO2 3400 X-130

Model code:	Description:
CO2 3400 X-130	Carbon dioxide measurement

Module Type COND 3400 X-04*

Model code:	Description:
COND 3400 X-041	conductivity measurement with 2 and 4 electrodes / sensors

Module Type OXY 3400 X-06*

Model code:	Description:
OXY 3400 X-062	oxygen measurement in liquids, standard application
OXY 3400 X-063	oxygen measurement in liquids, trace measurements
OXY 3400 X-065	oxygen measurement in liquids, standard application
OXY 3400 X-066	oxygen measurement in liquids, trace measurements
OXY 3400 X-067	oxygen measurement in liquids, trace measurements

Module Type PHU 3400 X-110

Model code:	Description:
PHU 3400 X-110	pH measurement with glass electrodes, supply and control of retractable probe control unit Type Unical 9000-X***

Module Type CONDI 3400 X-05*

Model code:	Description:
CONDI 3400 X-051	inductive conductivity measurement with 2 and 4 electrodes sensors

Certificate: 1668976 **Master Contract:** 188909

CSA INTERNATIONAL

Project: **2353624** **Date Issued: October 14, 2010**

Module Type OUT 3400 X-07*

Model code:	Description:
OUT 3400 X-071	output module, provides analog and switch outputs

Module Type PID 3400 X-12*

Model code:	Description:
PID 3400 X-121	PID controller

Module Type COM 3400 X-08*

Model code:	Description:
COMPA 3400 X-081	Interface for Profibus-PA (MPB-IS)
COMFF 3400 X-085	Interface for Foundation Fieldbus (FF-H1)

Module Type FIU 3400 X-14*

Model code:	Description:
FIU 3400X-140-2	Tripple Intrinsically Safe RS 485 circuits

Module Type MS 3400 X-16*

Model code:	Description:
MS 3400 X-16*	Memosens Module

APPLICABLE REQUIREMENTS

CSA-C22.2 No. 0-M91(R2001)	- General Requirements Canadian Electrical Code, Part II
CAN/CSA-C22.2 No. 157-92 (R2002)	- Intrinsically Safe and Non-incendive Equipment for use in Hazardous Locations.
CSA-C22.2 No. 213-M 1987 (R2004)	- Non-incendive Equipment for use in Class I, Division 2 hazardous locations.
CAN/CSA-E60079-0-02	- Electrical apparatus for explosive gas atmospheres; Part 0: General requirements.
CAN/CSA-E60079-7-03	- Electrical apparatus for explosive gas atmospheres; Part 7: Increased safety “e”.
CAN/CSA-E60079-11-02	- Electrical apparatus for explosive gas atmospheres; Part 15: Intrinsic safety "i"..
CAN/CSA-E60079-15-02	- Electrical apparatus for explosive gas atmospheres; Part 11: Type of protection “n”
CAN/CSA-E79-18-95 (R2004)	- Electrical apparatus for explosive gas atmospheres; Part 18: Encapsulation “m”.
CSA C22.2 No. 142-M1987 (R1993)	- Process Control Equipment.

Certificate: 1668976 **Master Contract:** 188909

Project: **2353624** **Date Issued: October 14, 2010**

CSA INTERNATIONAL

MARKINGS

The marking of the equipment includes:

- Model code
- NI, Class I, Division 2, Groups A, B, C and D, with IS circuits extending into Division 1; Enclosure 4X;
  or
- AIS, Class I, Zone 1, Ex me ib [ia] IIC T4; Enclosure 4X;
  or
- NI, Class I, Zone 2, Ex nA [ia] IIC; Enclosure 4X;
- Ambient temperature –20 °C … +50 °C
- Control drawing number
- Serial number
- Manufacturers name
- CSA logo

CSA INTERNATIONAL

Supplement to Certificate of Compliance

Certificate: 1668976 **Master Contract:** 188909

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
1668976	April 29, 2005	CSA Original certification for Protos modular measuring system for liquid amalysis, type 3400 X * / ***
1761298	February 16, 2006	Addition of Module Type PH 3400 X-035, Type PH 3400 X-036, Type CO2 3400 X-130, Type OXY 3400X-065 and Type OXY 3400X-066 to the Protos modular measuring system for liquid analysis Type 3400 X
1897677	April 23, 2007	Addition of Module Type OXY 3400X-067 and Type FIU 3400X-14* to the Protos modular measuring system for liquid analysis Type 3400 X
2280864	May 4, 2010	Addition of Module Type FIU 3400X-140-2 to the Protos modular measuring system for liquid analysis Type 3400 X
2353624	October 14, 2010	Addition of Module Type MS 3400X-16* to the Protos modular measuring system for liquid analysis Type 3400 X

CSA INTERNATIONAL

Certificate of Compliance

Certificate: 1555681 **Master Contract:** 188909

Project: 1555681 **Date Issued:** August 18, 2004

Issued to: **Knick Elektronische MeBgerate GmbH & Co.**
Postfach 37 04 15
14134 Berlin
GERMANY

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US'

C US

Authorized by: O. Ewanchyna, P. Eng.

PRODUCTS

Class 2252 03 Process Control Equipment
Class 2252 83 Process Control Equipment – Certified to U.S. Standards

Modular measuring system for liquid analysis.
Model: Protos 3400 S (Stainless steel enclosure), Protos 3400 C (Coated steel enclosure)
Input: 24 to 230 V AC/DC, 45 to 65 Hz, 15 VA / 10 W

APPLICABLE REQUIREMENTS

CAN/C22.2 No.1010.1-92	-	Safety requirements for electrical equipment for measurement, control, and laboratory use, Part 1: General Requirements. Amendment 2: 1997 to CAN/CSA-C22.2 No 1010.1-92
UL61010C-1	-	Safety requirements for process control equipment

CONDITIONS OF ACCEPTABILIY

The above module have been evaluated for use in a max. ambient temperature of 55°C, pollution degree 2 and Installation Category II enviroment

The 'C' and 'US' indicators adjacent to the CSA Mark signify that the product has been evaluated to the applicable CSA and ANSI/UL Standards, for use in Canada and the U.S., respectively. This 'US' indicator includes products eligible to bear the 'NRTL' indicator. NRTL, i.e. National Recognized Testing Laboratory, is a designation granted by the U.S. Occupational Safety and Health Administration (OSHA) to laboratories which have been recognized to perform certification to U.S. Standards.

DQD 507 Rev. 2003-01-31

FM Approvals
Member of the FM Global Group

CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

3400X. Protos Modular Measuring System.
NI / I / 2 / ABCD / T4 Ta = 50°C - 201.003-170; NIFW;
AIS / I, II, III / 1 / ABCDEFG - 201.003-170; Entity;
I / 2 / AEx nA IIC / T4 Ta = 50°C - 201.003-170; NIFW;
I / 1 / AEx me ib [ia] IIC / T4 Ta = 50°C - 201.003-170; Entity; Type 4X
Refer to control drawing 201.003-170 for entity parameters
The 3400X Protos Modular Measuring System consists of the following modules:

BASE 3400Xa/b. Power Supply.
NI / I / 2 / ABCD / T4 Ta = 50°C - 201.003-170; NIFW;
AIS / I, II, III / 1 / ABCDEFG - 201.003-170; Entity;
I / 2 / AEx nA IIC / T4 Ta = 50°C - 201.003-170; NIFW;
I / 1 / AEx me ib [ia] IIC / T4 Ta = 50°C - 201.003-170; Entity
Refer to control drawing 201.003-170 for entity parameters
a = Enclosure material C or S.
b = Power supply option 24V or VPW.

FRONT 3400Xa-015. Door.
NI / I / 2 / ABCD / T4 Ta = 50°C - 201.003-170
I / 2 / AEx nA IIC / T4 Ta = 50°C - 201.003-170
I / 1 / AEx ib IIC / T4 Ta = 50°C - 201.003-170
a = Enclosure material C or S.

PH 3400X-03a. PH Module.
NI / I / 2 / ABCD / T4 Ta = 50°C - 201.003-170; NIFW;
IS / I / 1 / ABCD / T4 Ta = 50° - 201.003-170; Entity;
I / 2 / AEx nA IIC / T4 Ta = 50°C - 201.003-170; NIFW;
I / 1 / AEx ib [ia] IIC / T4 Ta = 50°C - 201.003-170; Entity
Refer to control drawing 201.003-170 for entity parameters
a = PH measurement option 2, 3, 5 or 6.

CO2 3400X-130. Carbon Dioxide Module.
NI / I / 2 / ABCD / T4 Ta = 50°C - 201.003-170; NIFW;
IS / I / 1 / ABCD / T4 Ta = 50° - 201.003-170; Entity;
I / 2 / AEx nA IIC / T4 Ta = 50°C - 201.003-170; NIFW;
I / 1 / AEx ib [ia] IIC / T4 Ta = 50°C - 201.003-170; Entity
Refer to control drawing 201.003-170 for entity parameters

COND 3400X-041. Conductivity Module.
NI / I / 2 / ABCD / T4 Ta = 50°C - 201.003-170; NIFW;
IS / I / 1 / ABCD / T4 Ta = 50° - 201.003-170; Entity;
I / 2 / AEx nA IIC / T4 Ta = 50°C - 201.003-170; NIFW;
I / 1 / AEx ib [ia] IIC / T4 Ta = 50°C - 201.003-170; Entity
Refer to control drawing 201.003-170 for entity parameters

OXY 3400X-06a. Oxygen Module.
NI / I / 2 / ABCD / T4 Ta = 50°C - 201.003-170; NIFW;
IS / I / 1 / ABCD / T4 Ta = 50° - 201.003-170; Entity;
I / 2 / AEx nA IIC / T4 Ta = 50°C - 201.003-170; NIFW;
I / 1 / AEx ib [ia] IIC / T4 Ta = 50°C - 201.003-170; Entity
Refer to control drawing 201.003-170 for entity parameters
a = Application option 2, 3, 5, 6 or 7.

FIU 3400X-140. Digital Module.
NI / I / 2 / ABCD / T4 Ta = 50°C - 201.003-170; NIFW;
IS / I / 1 / ABCD / T4 Ta = 50° - 201.003-170; Entity;
I / 2 / AEx nA IIC / T4 Ta = 50°C - 201.003-170; NIFW;
I / 1 / AEx ib [ia] IIC / T4 Ta = 50°C - 201.003-170; Entity
Refer to control drawing 201.003-170 for entity parameters

FIU 3400X-140-2. Digital Module.
NI / I / 2 / ABCD / T4 Ta = 50°C - 201.003-170; NIFW;
IS / I / 1 / ABCD / T4 Ta = 50° - 201.003-170; Entity;
I / 2 / AEx nA IIC / T4 Ta = 50°C - 201.003-170; NIFW;
I / 1 / AEx ib [ia] IIC / T4 Ta = 50°C - 201.003-170; Entity
Refer to control drawing 201.003-170 for entity parameters

PHU 3400X-110. PH Module.
NI / I / 2 / ABCD / T4 Ta = 50°C - 201.003-170; NIFW;
IS / I / 1 / ABCD / T4 Ta = 50° - 201.003-170; Entity;
I / 2 / AEx nA IIC / T4 Ta = 50°C - 201.003-170; NIFW;
I / 1 / AEx ib [ia] IIC / T4 Ta = 50°C - 201.003-170; Entity
Refer to control drawing 201.003-170 for entity parameters

CONDI 3400X-051. Inductive Conductivity Module.
NI / I / 2 / ABCD / T4 Ta = 50°C - 201.003-170; NIFW;
IS / I / 1 / ABCD / T4 Ta = 50° - 201.003-170; Entity;
I / 2 / AEx nA IIC / T4 Ta = 50°C - 201.003-170; NIFW;
I / 1 / AEx ib [ia] IIC / T4 Ta = 50°C - 201.003-170; Entity
Refer to control drawing 201.003-170 for entity parameters

OUT 3400X-071. Output Module.
NI / I / 2 / ABCD / T4 Ta = 50°C - 201.003-170; NIFW;
IS / I / 1 / ABCD / T4 Ta = 50° - 201.003-170; Entity;
I / 2 / AEx nA IIC / T4 Ta = 50°C - 201.003-170; NIFW;
I / 1 / AEx ib [ia] IIC / T4 Ta = 50°C - 201.003-170; Entity
Refer to control drawing 201.003-170 for entity parameters

PID 3400X-121. PID Controller Module.
NI / I / 2 / ABCD / T4 Ta = 50°C - 201.003-170; NIFW;
IS / I / 1 / ABCD / T4 Ta = 50° - 201.003-170; Entity;
I / 2 / AEx nA IIC / T4 Ta = 50°C - 201.003-170; NIFW;
I / 1 / AEx ib [ia] IIC / T4 Ta = 50°C - 201.003-170; Entity
Refer to control drawing 201.003-170 for entity parameters

COMPA 3400X-081. Interface Module.
NI / I / 2 / ABCD / T4 Ta = 50°C - 201.003-170; NIFW;
IS / I / 1 / ABCD / T4 Ta = 50° - 201.003-170; Entity;
I / 2 / AEx nA IIC / T4 Ta = 50°C - 201.003-170; NIFW;
I / 1 / AEx ib [ia] IIC / T4 Ta = 50°C - 201.003-170; Entity
Refer to control drawing 201.003-170 for entity parameters

COMFF 3400X-085. Interface Module.
NI / I / 2 / ABCD / T4 Ta = 50°C - 201.003-170; NIFW;
IS / I / 1 / ABCD / T4 Ta = 50° - 201.003-170; Entity;
I / 2 / AEx nA IIC / T4 Ta = 50°C - 201.003-170; NIFW;
I / 1 / AEx ib [ia] IIC / T4 Ta = 50°C - 201.003-170; Entity
Refer to control drawing 201.003-170 for entity parameters

Special Condition of Use:
1. The 3400X System may only be configured with the modules identified above.
2. The modules identified above shall only be used with the 3400X System.
3. The OXY 3400X Oxygen Module shall not be used in oxygen enriched environments with oxygen concentrations greater than 21% by volume.

Equipment Ratings:

Nonincendive for use in Class I, Division 2, Groups A, B, C and D and Class I, Zone 2, Group IIC; Associated Intrinsically Safe Apparatus for connection to Class I, II and III, Division 1, Groups A, B, C, D, E, F and G and Class I, Zone 0, Group IIC in accordance with Entity requirements and control drawing 201.003-170; Suitable for use in Class I, Zone 1, Group IIC Indoor and Outdoor (Type 4X) Hazardous (Classified) Locations

FM Approved for:

Knick Elektronische Messgeräte GmbH & Co. KG
Beuckestrasse 22
D-14163 Berlin
Germany

FM Approvals
Member of the FM Global Group

This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

Class 3600	1998
Class 3610	1999
Class 3611	2004
Class 3810	2005
ANSI/ISA-12.00.01	2002
ANSI/ISA-12.12.02	2002
ANSI/ISA-12.16.01	2002
ANSI/ISA-12.23.01	2002
ANSI/NEMA 250	1991

Original Project ID: 3023762 Approval Granted: March 2, 2006

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
3026396	July 7, 2006		
080423	June 19, 2009		
100802	December 23, 2010		

FM Approvals LLC

J.E. Marquedant

E. Marquedant
Group Manager, Electrical

23 December 2010
Date

1/06

3023762
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CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

Unical-9000 - XSabcdefgh 000 000 Control System

IS / I, II, III / 1 / ABCDEFG / T4 Ta = 2°C to 50°C - 207.011-260 Entity; Type 4X/IP65
I / 0 / AEx ia IIC / T4 Ta = 2°C to 50°C - 207.011-260 Entity; Type 4X/IP65
NI / I / 2 / ABCD; S / II, III / 2 / EFG /T4 Ta = 2°C to 50°C; Type 4X/IP65
I / 2 / IIC / T4 Ta = 2°C to 50°C; Type 4X/IP65

Where

a = Media connection: 1, 2, 3, 4
b = Media Interface: 0, 1
c = Media Adapter: 0, 1, 2
d = Equipment for Port I: 0, 2
e = Equipment for Port II: 0, 2
f = Equipment for Port III: 0, 2, 3
g = Supplementary air purging kit: C, N
h = Supplementary ext. valve control kit: E, N

Equipment Ratings:

Intrinsically Safe for Class I, II, and III, Division 1, Groups A-G; intrinsically safe for Class I, Zone 0, Group IIC; suitable for Class I, II, and III, Division 2, Groups A-G; suitable for Class I, Zone 2, Group IIC.

FM Approved for:

Knick Elektronische Meßgeräte GmbH & Co. KG
Berlin, Germany

FM Approvals℠
Member of the FM Global Group

This certifies that the equipment described has been found to comply with the following FM Approval Standards and other documents:

Class 3600	1998
Class 3610	1999
Class 3611	2004
Class 3819	1995
ANSI/NEMA 250	1991

Original Project ID: 3024483 Approval Granted: June 29, 2006

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date

FM Approvals LLC

Robert L. Martell, Jr.
Assistant Vice President

June 29, 2006
Date

NEPSI Certificate of Conformity
Protos® 3400X

Ex NEPSI

EXPLOSION PROTECTION
CERTIFICATE OF CONFORMITY

Cert NO.GYJ15.1402

This is to certify that the product

Modular Analyzing System

manufactured by Knick Elektronische Messgeräte GmbH & Co. KG
(Address:Beuckestrasse 22, D-14163 Berlin, Germany)

which model is Protos 3400 X */***

Ex marking Ex e ib mb [ia Ga] IICT4 Gb、Ex tD [iaD 20] A21 IP6X T70℃
Ex ic nA nC [ia Ga] IICT4 Gc、Ex tD [iaD 20] A22 IP6X T70℃
Ex ic nA nC [ic] IICT4 Gc

product standard /

drawing number /

has been inspected and certified by NEPSI, and that it conforms to GB 3836.1-2010,GB 3836.3-2010,GB 3836.4-2010,GB 3836.20-2010, GB 3836.8-2003,GB 3836.9-2006,GB 3836.18-2010,GB 12476.1-2013, GB 12476.4-2010,GB 12476.5-2013

This Approval shall remain in force until 2020.08.19

Remarks 1.Conditions for safe use are specified in the attachment to this certificate.
2.Intrinsic safety parameters specified in the attachment to this certificate.

Director

National Supervision and Inspection Centre for Explosion Protection and Safety of Instrumentation

Issued Date 2015.08.20

This Certificate is valid for products compatible with the documents and samples approved by NEPSI.

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Edition 05

国家级仪器仪表防爆安全监督检验站

National Supervision and Inspection Centre for Explosion Protection and Safety of Instrumentation

(GYJ15.1402) **(Attachment Ⅰ)**

Attachment Ⅰ

(Translation)

Modular Analyzing System Protos Type 3400 X */***, manufactured by Knick Elektronische Messgeräte GmbH & Co. KG，have been approved by National Supervision and Inspection Centre for Explosion Protection and Safety of Instrumentation (NEPSI) in accordance with the following standards:

GB3836.1–2010 Explosive atmospheres – Part 1: Equipment – General requirements
GB3836.3–2010 Explosive atmospheres – Part 3: Equipment protection by increased safety "e"
GB3836.4–2010 Explosive atmospheres – Part 4: Equipment protection by Intrinsic safety "i"
GB3836.8–2003 Electrical apparatus for explosive gas atmospheres Part 8: Type of protection "n"
GB3836.9–2006 Electrical apparatus for explosive gas atmospheres Part 9: Encapsulation "m"
GB3836.18–2010 Electrical atmospheres – Part 18: Intrinsically safe system
GB3836.20–2010 Electrical atmospheres – Part 20: Equipment with equipment protection level (EPL) Ga
GB12476.1–2013 Electrical apparatus for use in the presence of combustible dust – Part 1: General requirements
GB12476.4–2010 Electrical apparatus for use in the presence of combustible dust – Part 4: Protection by intrinsic safety "iD"
GB12476.5–2013 Electrical apparatus for use in the presence of combustible dust – Part 5: Protection by enclosures "tD"

Modular Analyzing System Protos Type 3400 X */*** are approved with the following explosion marking:

Ex e ib mb [ia Ga] ⅡCT4 Gb
Ex tD [iaD 20] A21 IP6X T70℃
Ex ic nA nC [ia Ga] ⅡCT4 Gc
Ex tD [iaD 20] A22 IP6X T70℃
Ex ic nA nC [ic] ⅡCT4 Gc

The enclosure satisfies degree of protection IP6X according to GB4208-2008. The certificate number is GYJ15.1402.

(GYJ15.1402) **(Attachment Ⅰ)**

The complete System consists of the following modules:

Unit/Module	Name	Type of protection			
		ⅡC Gb	tD A21	ⅡC Gc	tD A22
BASE 3400X */VPW BASE 3400X */24V	Power supply	Ex e ib mb	Ex tD	Ex nA nC ic	Ex tD
FRONT 3400X *-015	Door	Ex ib	Ex tD	Ex nA nC ic	Ex tD
PH 3400X-032 PH 3400X-033 PH 3400X-035 PH 3400X-036	pH Measurement Module	Ex ib [ia Ga]	Ex tD [iaD 20]	Ex ic [ia Ga]	Ex tD [iaD 20]
COND 3400X-041	Conductivity Measurement Module	Ex ib [ia Ga]	Ex tD [iaD 20]	Ex ic [ia Ga]	Ex tD [iaD 20]
OXY 3400X-062 OXY 3400X-063 OXY 3400X-065 OXY 3400X-066 OXY 3400X-067	Oxygen Concentration Measurement Module	Ex ib [ia Ga]	Ex tD [iaD 20]	Ex ic [ia Ga]	Ex tD [iaD 20]
PHU 3400X-110	Unical 9000X Communication Module	Ex ib [ia Ga]	Ex tD [iaD 20]	Ex ic [ia Ga]	Ex tD [iaD 20]
CONDI 3400X-051	Inductive Conductivity Measurement Module	Ex ib [ia Ga]	Ex tD [iaD 20]	Ex ic [ia Ga]	Ex tD [iaD 20]
OUT 3400X-071	Output Module （Analog and Switch outputs）	Ex ib	Ex tD	Ex ic	Ex tD
PID 3400X-121	PID Controller	Ex ib	Ex tD	Ex ic	Ex tD
COMPA 3400X-081 COMFF 3400X-085	Interface （Profibus-PA and FFbus）	Ex ib	Ex tD	Ex ic [ia Ga]	Ex tD
CO2 3400X-130	Carbon dioxide Concentration Measurement Module	Ex ib [ia Ga]	Ex tD [iaD 20]	Ex ic [ia Ga]	Ex tD [iaD 20]
FIU 3400X-140-2	Triple RS485 Module	Ex ib [ia Ga]	Ex tD [iaD 20]	Ex ic [ia Ga]	Ex tD [iaD 20]
MS 3400X-160	Memosens Module	Ex ib [ia Ga]	Ex tD [iaD 20]	Ex ic [ia Ga]	Ex tD [iaD 20]

Ⅰ. SPECIAL REQUIREMENTS

1.1 Permissible ambient temperature range: -20℃~+50℃.

1.2 Electrical safety parameters:

BASE 3400X */***:

Terminal Code	Electrical parameters	Max. voltage Um（V）
Power supply circuit: KL N, KL L, KL PE	100～230Va.c.(-15%,+10%), 15VA, 48～62Hz 24Vac(-15%,+10%), 15VA, 48～62Hz 24Vdc(-15%,+20%), 8W	250V

(GYJ15.1402) **(Attachment Ⅰ)**

Terminal Code	Max.input voltage Ui (V)	Max.input current Ii（mA）	Max.input power Pi（W）	Maximum internal parameters	
				Ci(μF)	Li(mH)
OK1： KL30, KL31 OK2： KL30, KL33	30	--	--	0	0
K1： KL60, KL61 K2： KL60, KL63 K3： KL60, KL65 Alarm： KL71, KL72	30	500	10	0	0
Terminal Code	Max.output voltage Uo (V)	Max.output current Io（mA）	Max.output power Po（mW）	Maximum external parameters	
				Co(nF)	Lo(mH)
I1： KL51, KL52 I2： KL53, KL54	17	84	357	243	3
D-SUB WE-Connector	Only for connection to certified Modules type ***3400 X- *** and the door type FRONT 3400 X */***				

FRONT 3400X */***：

Terminal Code	Electrical safety parameters
BU2	Only for connection to the certified Measuring System Protos Type 3400 X */***
SmartMedia-card	Only for use with a SmartMedia-Card Type ZU 0543

PH 3400X-032 and PH 3400X-033：

Terminal Code	Max.output voltage Uo (V)	Max.output current Io（mA）	Max.output power Po（mW）	Maximum external parameters	
				Co(μF)	Lo(mH)
pH Measuring circuit KL2, KL8, KL12, KL13, KL16	10	20	25	1.5	1
DF supply circuit KL14, KL15	10	14	35	1.26	1.2
Temperature measurement circuit KL17, KL18, KL19	10	10	12	1.2	1
pH/ Temperature measurement circuit KL2, KL8, KL12, KL13, KL16, KL17, KL18, KL19	10	30	38	1.1	1
Power suppply and Kbus ST1	Only for connection to the certified Measuring System Protos Type 3400 X */***				

(GYJ15.1402) **(Attachment Ⅰ)**

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

Terminal Code	Max.output voltage Uo (V)	Max.output current Io（mA）	Max.output power Po（mW）	Maximum external parameters	
				Co(μF)	Lo(mH)
pH measurement ciruit KL2, KL8, KL12, KL15	12	1.6	2.9	0.947	1
pH/ISFET measurement circuit KL2, KL8, KL12, KL13, KL14, KL15	12	4.3	7.8	0.933	1
Temperature measurement circuit KL18, KL19	7.2	6.6	11.9	3	1
pH/ Temperature measurement circuit KL2, KL8, KL12, KL15, KL18, KL19	12	8.2	14.8	0.923	1
pH/ISFET/ Temperature measurement circuit KL2, KL8, KL12, KL13, KL14, KL15, KL18, KL19	12	10.9	19.7	0.909	1
pH/ISM Temperature measurement circuit KL2, KL8, KL12, KL15, KL16, KL17, KL18, KL19	12	23.4	42.2	0.911	1
pH/ ISFET/ Temperature /ISM measurement circuit KL2, KL8, KL12, KL13, KL14, KL15, KL16, KL17, KL18, KL19	12	26.1	47	0.909	1
Power suppply and Kbus ST1	Only for connection to the certified Measuring System Protos Type 3400 X */***				

(GYJ15.1402) **(Attachment Ⅰ)**

COND 3400X-041：

Terminal Code	Max.output voltage Uo (V)	Max.output current Io（mA）	Max.output power Po（mW）	Maximum external parameters	
				Co(μF)	Lo(mH)
Conductivity measurement circuit KL1, KL2, KL3, KL4, KL5	10	112	139	1	1
Temperature measurement circuit KL16, KL17, KL18, KL19	10	10	12	1.26	1.2
Conductivity / Temperature measurement circuit KL1, KL2, KL3, KL4, KL5, KL16, KL17, KL18, KL19	10	122	153	0.858	1
Power suppply and Kbus ST1	Only for connection to the certified Measuring System Protos Type 3400 X */***				

OXY 3400X-062 and OXY 3400X-063：

Terminal Code	Max.output voltage Uo (V)	Max.output current Io（mA）	Max.output power Po（mW）	Maximum external parameters	
				Co(μF)	Lo(mH)
Oxygen measurement circuit KL2, KL8, KL13, KL14, KL15, KL16	10	10	13	1.5	1
Temperature measurement circuit KL17, KL18	10	1	2	1.38	1
Oxygen / Temperature measurement circuit KL2, KL8, KL13, KL14, KL15, KL16, KL17, KL18	10	11	14	1.38	1
Power suppply and Kbus ST1	Only for connection to the certified Measuring System Protos Type 3400 X */***				

(GYJ15.1402) **(Attachment Ⅰ)**

OXY 3400X-065 and OXY 3400X-066：

Terminal Code	Max.output voltage Uo (V)	Max.output current Io（mA）	Max.output power Po（mW）	Maximum external parameters	
				Co(μF)	Lo(mH)
Oxygen measurement circuit KL2, KL8, KL12, KL13	10	7.5	10	1.5	1
Temperature measurement circuit KL16, KL17	5	1	1.5	4.4	5
Oxygen / Temperature measurement circuit KL2, KL8, KL12, KL13, KL16, KL17	10	9	12	1.4	1
Oxygen / ISM/Temperature measurement circuit KL2, KL8, KL12, KL13, KL14, KL15, KL16, KL17	10	19	24	1.4	1
Terminal Code	Max.input voltage Ui (V)	Max.input current Ii（mA）	Max.input power Pi（W）	Maximum internal parameters	
				Ci(nF)	Li(mH)
0(4)-20mA Measurement circuit KL18, KL19	30	125	1.5	12	0
Power suppply and Kbus ST1	Only for connection to the certified Measuring System Protos Type 3400 X */***				

OXY 3400X-067：

Terminal Code	Max.output voltage Uo (V)	Max.output current Io（mA）	Max.output power Po（mW）	Maximum external parameters	
				Co(μF)	Lo(mH)
Oxygen measurement circuit KL2, KL8, KL12, KL13, KL15	10	12	16	1.5	1
Temperature measurement circuit KL13, KL14	5	1	1.5	4.4	5

(GYJ15.1402) **(Attachment Ⅰ)**

Oxygen / Temperature measurement circuit KL2, KL8, KL12, KL13, KL14, KL15	10	13	17	1.4	1
Oxygen / ISM/Temperature measurement circuit KL2, KL8, KL12, KL13, KL14, KL15, KL16, KL17	10	33	42	1.3	1
Terminal Code	Max.input voltage Ui (V)	Max.input current Ii（mA）	Max.input power Pi（W）	Maximum internal parameters	
				Ci(nF)	Li(mH)
0(4)-20mA Measurement circuit KL18, KL19	30	125	1.5	12	0
Power suppply and Kbus ST1	Only for connection to the certified Measuring System Protos Type 3400 X */***				

PHU 3400X -110：

Terminal Code	Max.output voltage Uo (V)	Max.output current Io（mA）	Max.output power Po（mW）	Maximum external parameters	
				Co(μF)	Lo(mH)
pH measurement circuit KL2, KL8, KL12	10	20	25	1.5	1
Temperature measurement circuit KL13, KL14, KL15	5	10	12	6	1
pH/ Temperature measurement circuit KL2, KL8, KL12, KL13, KL14, KL15	10	29	47	1.4	1
Supply circuit for Unical KL18, KL19	7.5	140	297	1.68	1
Interface circuit for Unical KL16, KL17, KL18	5	257	322	3.5	1.2
Power suppply and Kbus ST1	Only for connection to the certified Measuring System Protos Type 3400 X */***				

(GYJ15.1402) **(Attachment Ⅰ)**

CONDI 3400X-051：

Terminal Code	Max.output voltage Uo (V)	Max.output current Io（mA）	Max.output power Po（mW）	Maximum external parameters	
				Co(μF)	Lo(mH)
Conductivity measurement circuit KL1～KL7	7	45	26	1.4	12
Temperature measurement circuit KL16, KL17, KL18, KL19	5	9.1	12	3.26	16
Conductivity/ Temperature measurement circuit KL1～KL7 KL16～KL19	7	54.1	38	1.05	10
Power suppply and Kbus ST1	Only for connection to the certified Measuring System Protos Type 3400 X */***				

OUT 3400X-071, PID 3400X-121：

Terminal Code	Max.input voltage Ui (V)	Max.input current Ii（mA）	Max.input power Pi（W）	Maximum internal parameters	
				Ci(nF)	Li(mH)
Output circuits I3/IV1 KL7, KL8 I4/IV2 KL9, KL10	30	100	0.8	12	0
Switch circuits K5/KV1 KL12, KL13 K6/KV2 KL14, KL15 K7/KV9 KL16, KL17 K8/KV10 KL18, KL19	30	100	0.8	12	0
Power suppply and Kbus ST1	Only for connection to the certified Measuring System Protos Type 3400 X */***				

(GYJ15.1402) **(Attachment Ⅰ)**

COM** 3400X-08*:

Terminal Code	Max.input voltage Ui (V)	Max.input current Ii (mA)	Max.input power Pi (W)	Maximum internal parameters	
				Ci(nF)	Li(μH)
Bus connection KL12, KL13, KL14	17.5	380	5.32	5	10
	24	250	1.5	5	10
Power suppply and Kbus ST1	Only for connection to the certified Measuring System Protos Type 3400 X */***				
Remark: The first row parameters comform to FISCO。					

FIU 3400X-140-2:

Terminal Code	Max.output voltage Uo (V)	Max.output current Io (mA)	Max.output power Po (mW)	Maximum external parameters	
				Co(μF)	Lo(mH)
Supply/Interface circuit Memosens Ⅱ KL6, KL7, KL8, KL9, KL10 Memosens Ⅰ KL11, KL12, KL13, KL14, KL15	5	123	154	97.4	2
Supply circuit for Unical KL18, KL19	7.5	115	216	10.9	2
	Or for connection to Retractable Probe Control Unit type Unical 9000-X series or Uniclean 900-X series				
Interfacefor Unical KL16, KL17, KL18	5	118	148	100	2
	Or for connection to Retractable Probe Control Unit type Unical 9000-X series or Uniclean 900-X series				
Power suppply and Kbus ST1	Only for connection to the certified Measuring System Protos Type 3400 X */***				

(GYJ15.1402) **(Attachment Ⅰ)**

MS 3400X-160:

Terminal Code	Max.input voltage Ui (V)	Max.input current Ii（mA）	Max.input power Pi（W）	Maximum internal parameters	
				Ci(μF)	Li(mH)
Current-Input KL7, KL9	30	100	0.75	0.012	0
OK–input：KL11, KL13	30	--	--	0	0
Terminal Code	Max.output voltage Uo (V)	Max.output current Io（mA）	Max.output power Po（mW）	Maximum external parameters	
				Co(nF)	Lo(mH)
Supply / Interface circuit Memosens：KL1, KL2,KL3 KL4, KL5	5	127	159	96.2	2
Supply / Interface circuitISM：KL15, KL17	8.3	9.3	20	7.2	400
Power suppply and Kbus ST1	Only for connection to the certified Measuring System Protos Type 3400 X */***				

Note: the above parameters applied shall be compliance with either of the following methods:

1. for distributed inductance and capacitance e.g. as in a cable, allow the values of capacitance and inductance;
2. for circuits containing up to 1 % inductance or up to 1% capacitance with a cable, allow the values of capacitance and inductance;
3. for connection of the combined inductance and capacitance where both are greater than 1% of the allowed value (excluding the cable), allow up to 50% each of the values of capacitance and inductance.

1.3 The door may be opened for a short time in order to change the SmartMedia-card after assuring the clean of the surface of the enclosure.

1.4 This cover protects the terminals for the power supply circuit (KL N, KL L, KL PE) must not be opened when the analyzer is powered.

1.5 The cable entry holes have to be connected by means of suitable cable entry device and blanking elements, and which are covered by a separate examination certificate.

1.6 The enclosure shall be kept from the dust, but the dust shall not be blown by compressed air.

1.7 Users are forbidden to change the configuration to ensure the explosion protection performance of the equipment. Any faults shall be settled with experts from the manufacturer.

1.8 During installation, operation and maintenance, users shall comply with the relevant requirements of the product instruction manual, GB3836.13-2013 "Explosive atmospheres-Part 13: Equipment repair, overhaul and reclamation", GB3836.15-2000 "Electrical apparatus for explosive gas atmospheres Part 15: Electrical installations in hazardous areas (other than mines)", GB3836.16-2006 "Electrical apparatus for explosive gas atmospheres Part 16: Inspection and maintenance of electrical installation (other than mines)", GB3836.18-2010 "Electrical atmospheres – Part 18: Intrinsically safe system", GB15577-2007 "Safety regulations for the protection of dust explosion", GB12476.2-2010"Electrical apparatus for use in the presence of combustible dust - Part 2: Selection and installation" and GB50257-2014 "Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering".

Ⅱ. MANUFACTURER'S RESPONSIBILITY

2.1 The instruction manual shall include all the clauses mentioned above.
2.2 The manufacturer shall exactly conform to the documents approved by NEPSI.
2.3 The nameplate shall add the following:
2.3.1 Identification of NEPSI.
2.3.2 Certificate No.

National Supervision and Inspection Centre
For Explosion Protection and Safety of Instrumentation
August 20, 2015

NEPSI Certificate of Conformity
Protos® 3400X

Ex NEPSI

防 爆 合 格 证

证 号：GYJ15.1402

由 Knick Elektronische Messgeräte GmbH & Co. KG 制造的产品：
(地址： Beuckestrasse 22, D-14163 Berlin, Germany)

名 称 模块式分析变送器

型号规格 Protos 3400 X */***

防爆标志 Ex e ib mb [ia Ga] IICT4 Gb、Ex tD [iaD 20] A21 IP6X T70℃
Ex ic nA nC [ia Ga] IICT4 Gc、Ex tD [iaD 20] A22 IP6X T70℃
Ex ic nA nC [ic] IICT4 Gc

产品标准 /

图样编号 /

经图样及技术文件的审查和样品检验，确认上述产品符合 GB 3836.1-2010、GB 3836.3-2010、GB 3836.4-2010、GB 3836.20-2010、GB 3836.8-2003、GB 3836.9-2006、GB 3836.18-2010、GB 12476.1-2013、GB 12476.4-2010、GB 12476.5-2013 标准，特颁发此证。

本证书有效期： 2015 年 8 月 20 日至 2020 年 8 月 19 日

备注 1. 安全使用注意事项见本证书附件。
2. 本安电气参数见本证书附件。

站长

国家级仪器仪表防爆安全监督检验站

颁发日期二〇一五年八月二十日

本证书仅对与认可文件和样品一致的产品有效。

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版本05

国家级仪器仪表防爆安全监督检验站

National Supervision and Inspection Centre for
Explosion Protection and Safety of Instrumentation

(GYJ15.1402) (Attachment Ⅰ)

GYJ15.1402防爆合格证附件Ⅰ

由Knick Elektronische Messgeräte GmbH & Co. KG生产的Protos 3400 X */***系列模块式分析变送器，经国家级仪器仪表防爆安全监督检验站(NEPSI)检验，符合下列标准要求：

GB3836.1－2010 爆炸性环境 第1部分：设备 通用要求
GB3836.3－2010 爆炸性环境 第3部分：由增安型“e”保护的设备
GB3836.4－2010 爆炸性环境 第4部分：由本质安全型“i”保护的设备
GB3836.8－2003 爆炸性气体环境用电气设备 第8部分：“n”型电气设备
GB3836.9－2006 爆炸性气体环境用电气设备 第9部分：浇封型 “m”
GB3836.18－2010 爆炸性环境 第18部分：本质安全系统
GB3836.20－2010 爆炸性环境 第20部分：设备保护级别（EPL）为Ga级的设备
GB12476.1－2013 可燃性粉尘环境用电气设备 第1部分：通用要求
GB12476.4－2010 可燃性粉尘环境用电气设备 第4部分：本质安全型“iD”
GB12476.5－2013 可燃性粉尘环境用电气设备 第5部分：外壳保护型“tD”

防爆标志为：Ex e ib mb [ia Ga] ⅡCT4 Gb
Ex tD [iaD 20] A21 IP6X T70℃
Ex ic nA nC [ia Ga] Ⅱ CT4 Gc
Ex tD [iaD 20] A22 IP6X T70℃
Ex ic nA nC [ic] Ⅱ CT4 Gc

外壳防护等级IP6X，防爆合格证号为GYJ15.1402。

该产品由以下模块组成：

单元/模块	名称	防爆保护型式			
		Ⅱ C Gb	tD A21	Ⅱ C Gc	tD A22
BASE 3400X */VPW BASE 3400X */24V	主机	Ex e ib mb	Ex tD	Ex nA nC ic	Ex tD

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(GYJ15.1402) (Attachment Ⅰ)

FRONT 3400X *-015	前盖	Ex ib	Ex tD	Ex nA nC ic	Ex tD
PH 3400X-032 PH 3400X-033 PH 3400X-035 PH 3400X-036	pH测量模块	Ex ib [ia Ga]	Ex tD [iaD 20]	Ex ic [ia Ga]	Ex tD [iaD 20]
COND 3400X-041	电导率测量模块	Ex ib [ia Ga]	Ex tD [iaD 20]	Ex ic [ia Ga]	Ex tD [iaD 20]
OXY 3400X-062 OXY 3400X-063 OXY 3400X-065 OXY 3400X-066 OXY 3400X-067	氧浓度测量模块	Ex ib [ia Ga]	Ex tD [iaD 20]	Ex ic [ia Ga]	Ex tD [iaD 20]
PHU 3400X-110	Unical 9000X通讯模块	Ex ib [ia Ga]	Ex tD [iaD 20]	Ex ic [ia Ga]	Ex tD [iaD 20]
CONDI 3400X-051	电感式电导率测量模块	Ex ib [ia Ga]	Ex tD [iaD 20]	Ex ic [ia Ga]	Ex tD [iaD 20]
OUT 3400X-071	输出模块(模拟量和开关量输出)	Ex ib	Ex tD	Ex ic	Ex tD
PID 3400X-121	PID控制器	Ex ib	Ex tD	Ex ic	Ex tD
COMPA 3400X-081 COMFF 3400X-085	接口(Profibus-PA和FF总线)	Ex ib	Ex tD	Ex ic [ia Ga]	Ex tD
CO2 3400X-130	二氧化碳浓度测量模块	Ex ib [ia Ga]	Ex tD [iaD 20]	Ex ic [ia Ga]	Ex tD [iaD 20]
FIU 3400X-140-2	RS485通讯模块	Ex ib [ia Ga]	Ex tD [iaD 20]	Ex ic [ia Ga]	Ex tD [iaD 20]
MS 3400X-160	Memosens模块	Ex ib [ia Ga]	Ex tD [iaD 20]	Ex ic [ia Ga]	Ex tD [iaD 20]

一、产品使用注意事项

1. 使用环境温度：-20℃~+50℃。
2. 电气安全参数：

BASE 3400X */***型主机：

端子代号	电气参数	最高电压 Um（V）
电源电路： KL N, KL L, KL PE	100~230Va.c.(-15%,+10%), 15VA, 48~62Hz 24Vac(-15%,+10%), 15VA, 48~62Hz 24Vdc(-15%,+20%), 8W	250V

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(GYJ15.1402) (Attachment Ⅰ)

端子代号	最高输入电压 Ui (V)	最大输入电流 Ii (mA)	最大输入功率 Pi (W)	最大内部等效参数	
				Ci(μF)	Li(mH)
OK1：KL30, KL31 OK2：KL30, KL33	30	--	--	0	0
K1：KL60, KL61 K2：KL60, KL63 K3：KL60, KL65 Alarm：KL71, KL72	30	500	10	0	0
端子代号	最高输出电压 Uo	最大输出电流 Io (mA)	最大输出功率 Po (mW)	最大外部参数	
				Co(nF)	Lo(mH)
I1：KL51, KL52 I2：KL53, KL54	17	84	357	243	3
D-SUB WE-Connector	只能与本证书认可的***3400X- ***系列模块和FRONT 3400X */***型前盖连接				

FRONT 3400X */***型前盖：

端子代号	电气参数
BU2	只能与本证书认可的Protos 3400 X */***系列模块式分析变送器连接
SmartMedia-card	只能插接ZU 0543型SmartMedia卡

PH 3400X-032型和PH 3400X-033型pH测量模块：

端子代号	最高输出电压 Uo	最大输出电流 Io (mA)	最大输出功率 Po (mW)	最大外部参数	
				Co(μF)	Lo(mH)
pH测量电路 KL2, KL8, KL12, KL13, KL16	10	20	25	1.5	1
DF电源电路 KL14, KL15	10	14	35	1.26	1.2
温度测量电路 KL17, KL18, KL19	10	10	12	1.2	1
pH/温度测量电路 KL2, KL8, KL12, KL13, KL16, KL17, KL18, KL19	10	30	38	1.1	1
电源和Kbus ST1	只能与本证书认可的Protos 3400 X */***系列模块式分析变送器连接				

(GYJ15.1402) (Attachment Ⅰ)

PH 3400X-035型、PH 3400X-036型pH测量模块和CO2 3400X-130型二氧化碳浓度测量模块：

端子代号	最高输出电压 Uo	最大输出电流 Io (mA)	最大输出功率 Po (mW)	最大外部参数	
				Co(μF)	Lo(mH)
pH测量电路 KL2, KL8, KL12, KL15	12	1.6	2.9	0.947	1
pH/ISFET测量电路 KL2, KL8, KL12, KL13, KL14, KL15	12	4.3	7.8	0.933	1
温度测量电路 KL18, KL19	7.2	6.6	11.9	3	1
pH/温度测量电路 KL2, KL8, KL12, KL15, KL18, KL19	12	8.2	14.8	0.923	1
pH/ISFET/温度测量电路 KL2, KL8, KL12, KL13, KL14, KL15, KL18, KL19	12	10.9	19.7	0.909	1
pH/ISM/温度测量电路 KL2, KL8, KL12, KL15, KL16, KL17, KL18, KL19	12	23.4	42.2	0.911	1
pH/ISFET/温度/ISM测量电路 KL2, KL8, KL12, KL13, KL14, KL15, KL16, KL17, KL18, KL19	12	26.1	47	0.909	1
电源和Kbus ST1	只能与本证书认可的Protos 3400 X */***系列模块式分析变送器连接				

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(GYJ15.1402) (Attachment Ⅰ)

COND 3400X-041型电导率测量模块：

端子代号	最高输出电压 Uo	最大输出电流 Io (mA)	最大输出功率 Po (mW)	最大外部参数	
				Co(μF)	Lo(mH)
电导率测量电路 KL1, KL2, KL3, KL4, KL5	10	112	139	1	1
温度测量电路 KL16, KL17, KL18, KL19	10	10	12	1.26	1
电导率/温度测量电路 KL1, KL2, KL3, KL4, KL5, KL16, KL17, KL18, KL19	10	122	153	0.858	1
电源和Kbus ST1	只能与本证书认可的Protos 3400 X */***系列模块式分析变送器连接				

OXY 3400X-062型和OXY 3400X-063型氧浓度测量模块：

端子代号	最高输出电压 Uo	最大输出电流 Io (mA)	最大输出功率 Po (mW)	最大外部参数	
				Co(μF)	Lo(mH)
氧测量电路 KL2, KL8, KL13, KL14, KL15, KL16	10	10	13	1.5	1
温度测量电路 KL17, KL18	10	1	2	1.38	1
氧/温度测量电路 KL2, KL8, KL13, KL14, KL15, KL16, KL17, KL18	10	11	14	1.38	1
电源和Kbus ST1	只能与本证书认可的Protos 3400 X */***系列模块式分析变送器连接				

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(GYJ15.1402) (Attachment Ⅰ)

OXY 3400X-065型和OXY 3400X-066型氧浓度测量模块：

端子代号	最高输出电压 Uo	最大输出电流 Io (mA)	最大输出功率 Po (mW)	最大外部参数	
				Co(μF)	Lo(mH)
氧测量电路 KL2, KL8, KL12, KL13	10	7.5	10	1.5	1
温度测量电路 KL16, KL17	5	1	1.5	4.4	5
氧/温度测量电路 KL2, KL8, KL12, KL13, KL16, KL17	10	9	12	1.4	1
氧/ISM/温度测量电路 KL2, KL8, KL12, KL13, KL14, KL15, KL16, KL17	10	19	24	1.4	1
端子代号	最高输入电压 Ui (V)	最大输入电流 Ii (mA)	最大输入功率 Pi (W)	最大内部等效参数	
				Ci(nF)	Li(mH)
0(4)-20mA测量电路 KL18, KL19	30	125	1.5	12	0
电源和Kbus ST1	只能与本证书认可的Protos 3400 X */***系列模块式分析变送器连接				

OXY 3400X-067型氧浓度测量模块：

端子代号	最高输出电压 Uo	最大输出电流 Io (mA)	最大输出功率 Po (mW)	最大外部参数	
				Co(μF)	Lo(mH)
氧测量电路 KL2, KL8, KL12, KL13, KL15	10	12	16	1.5	1
温度测量电路 KL13, KL14	5	1	1.5	4.4	5
氧/温度测量电路 KL2, KL8, KL12, KL13, KL14, KL15	10	13	17	1.4	1
氧/ISM/温度测量电路 KL2, KL8, KL12, KL13, KL14, KL15, KL16, KL17	10	33	42	1.3	1
端子代号	最高输入电压 Ui (V)	最大输入电流 Ii (mA)	最大输入功率 Pi (W)	最大内部等效参数	
				Ci(nF)	Li(mH)
0(4)-20mA测量电路 KL18, KL19	30	125	1.5	12	0
电源和Kbus ST1	只能与本证书认可的Protos 3400 X */***系列模块式分析变送器连接				

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(GYJ15.1402) (Attachment Ⅰ)

PHU 3400X -110型Unical 9000X通讯模块电气参数：

端子代号	最高输出电压 Uo	最大输出电流 Io (mA)	最大输出功率 Po (mW)	最大外部参数	
				Co(μF)	Lo(mH)
pH测量电路 KL2, KL8, KL12	10	20	25	1.5	1
温度测量电路 KL13, KL14, KL15	5	10	12	6	1
pH/温度测量电路 KL2, KL8, KL12, KL13, KL14, KL15	10	29	47	1.4	1
Unical供电电路 KL18, KL19	7.5	140	297	1.68	1
Unical接口电路 KL16, KL17, KL18	5	257	322	3.5	1.2
电源和Kbus ST1	只能与本证书认可的Protos 3400 X */***系列模块式分析变送器连接				

CONDI 3400X-051型电感式电导率测量模块：

端子代号	最高输出电压 Uo	最大输出电流 Io (mA)	最大输出功率 Po (mW)	最大外部参数	
				Co(μF)	Lo(mH)
电导率测量电路 KL1～KL7	7	45	26	1.4	12
温度测量电路 KL16, KL17, KL18, KL19	5	9.1	12	3.26	16
电导率/温度测量电路 KL1～KL7 KL16～KL19	7	54.1	38	1.05	10
电源和Kbus ST1	只能与本证书认可的Protos 3400 X */***系列模块式分析变送器连接				

(GYJ15.1402) (Attachment Ⅰ)

OUT 3400X-071型Output模块和PID 3400X-121型PID控制器：

端子代号	最高输入电压 Ui (V)	最大输入电流 Ii (mA)	最大输入功率 Pi (W)	最大内部等效参数	
				Ci(nF)	Li(mH)
输出电路 I3/IV1 KL7, KL8 I4/IV2 KL9, KL10	30	100	0.8	12	0
切换电路 K5/KV1 KL12, KL13 K6/KV2 KL14, KL15 K7/KV9 KL16, KL17 K8/KV10 KL18, KL19	30	100	0.8	12	0
电源和Kbus ST1	只能与本证书认可的Protos 3400 X */***系列模块式分析变送器连接				

COM** 3400X-08*型接口：

端子代号	最高输入电压 Ui (V)	最大输入电流 Ii (mA)	最大输入功率 Pi (W)	最大内部等效参数	
				Ci(nF)	Li(μH)
总线连接 KL12, KL13, KL14	17.5	380	5.32	5	10
	24	250	1.5	5	10
电源和Kbus ST1	只能与本证书认可的Protos 3400 X */***系列模块式分析变送器连接				
注：第一组参数属于FISCO参数。					

FIU 3400X-140-2型RS485通讯模块电气参数：

端子代号	最高输出电压 Uo	最大输出电流 io (mA)	最大输出功率 Po (mW)	最大外部参数	
				Co(μF)	Lo(mH)
电源/接口电路 Memosens II KL6, KL7, KL8, KL9, KL10 Memosens I KL11, KL12, KL13, KL14, KL15	5	123	154	97.4	2
Unical供电电路 KL18, KL19	7.5	115	216	10.9	2
	可与Unical 9000-X系列或Uniclean 900-X系列自清洗控制系统连接				
Unical接口电路 KL16, KL17, KL18	5	118	148	100	2
	与Unical 9000-X系列或Uniclean 900-X系列自清洗控制系统连接				
电源和Kbus ST1	只能与本证书认可的Protos 3400 X */***系列模块式分析变送器连接				

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MS 3400X-160型Memosens模块

端子代号	最高输入电压 Ui (V)	最大输入电流 Ii (mA)	最大输入功率 Pi (W)	最大内部等效参数	
				Ci(μF)	Li(mH)
电流–输入：KL7, KL9	30	100	0.75	0.012	0
OK–输入：KL11, KL13	30	--	--	0	0
端子代号	最高输出电压 Uo	最大输出电流 Io (mA)	最大输出功率 Po (mW)	最大外部参数	
				Co(nF)	Lo(mH)
电源/接口电路 Memosens：KL1, KL2,KL3 KL4, KL5	5	127	159	96.2	2
电源/接口电路 ISM：KL15, KL17	8.3	9.3	20	7.2	400
电源和Kbus ST1	只能与本证书认可的Protos 3400 X */***系列模块式分析变送器连接				

注：以上表格中最大外部电容（Co）和电感(Lo)数值使用时应注意下列要求：

- 对于仅含分布电感和电容的电路，例如电缆的分布电容和电感，允许的最大外部电容和电感数值为表格允许值；
- 对于与电缆组合的电路，当本安电路中含有最大为表格允许值1%以下的电感或表格容许值1%以下的电容时，允许的最大外部电容和电感数值为表格允许值；
- 对于电感和电容组合电路，当电感和电容均大于表格容许值的1%（不包括电缆）时，允许的最大外部电容和电感数值为表格允许值的50%。

3．在保证外壳表面清洁的条件下，短时间内完成打开前盖更换SMART卡的操作。

4．主机电源端子（KL N, KL L, KL PE/KL L1, KL L2, KL PE）的端子罩必须在切断电源的条件下方可打开。

5．电缆引入口必须配置电缆引入装置或封堵件，该类部件必须具有与产品防爆标志相适应的防爆合格证书。冗余口用封堵件堵封，同时电缆引入装置或封堵件的安装使用必须遵守说明书要求。

6．应当保持产品外壳表面清洁，以防粉尘堆积，但严禁用压缩空气吹扫。

7．用户不得自行更换该产品的零部件，应会同产品制造商共同解决运行中出现的故障，以杜绝损坏现象的发生。

(GYJ15.1402) (Attachment Ⅰ)

8. 产品的安装、使用和维护应同时遵守产品说明书、GB3836.13－2013“爆炸性环境 第13部分：设备的修理、检修、修复和改造”、GB3836.15－2000“爆炸性气体环境用电气设备 第15部分：危险场所电气安装（煤矿除外）”、GB3836.16－2006“爆炸性气体环境用电气设备 第16部分：电气装置的检查和维护（煤矿除外）”、GB3836.18－2010“爆炸性环境 第18部分：本质安全系统”、GB15577－2007“粉尘防爆安全规程”、GB12476.2－2010“可燃性粉尘环境用电气设备 第2部分：选型和安装”和GB50257－2014“电气装置安装工程爆炸和火灾危险环境 电气装置施工及验收规范”的有关规定。

二、制造厂责任

1. 产品制造厂必须将上述使用注意事项纳入该产品使用说明书；
2. 制造厂必须严格按照NEPSI认可的文件资料生产；
3. 产品铭牌中必须补充下列内容：

3.1 NEPSI认可标志

3.2 防爆合格证号

国家级仪器仪表防爆安全监督检验站

二〇一五年八月二十日

第 10 页 共 10 页

NEPSI Certificate of Conformity
Unical® 9000X, Uniclean® 900X

Ex NEPSI

EXPLOSION PROTECTION
CERTIFICATE OF CONFORMITY

Cert NO.GYJ15.1403

This is to certify that the product

Retractable Probe Control Unit

manufactured by Knick Elektronische Messgeräte GmbH & Co. KG

(Address:Beuckestrasse 22, D-14163 Berlin, Germany)

which model is Unical 9000–X...、Uniclean 900–X...

Ex marking Ex ia II CT4 Gb、Ex iaD 21 T70

product standard /

drawing number /

has been inspected and certified by NEPSI, and that it conforms to GB 3836.1-2010,GB 3836.4-2010,GB 12476.1-2013,GB 12476.4-2010

This Approval shall remain in force until 2020.08.19

Remarks 1.Conditions for safe use are specified in the attachment to this certificate.
2.Intrinsic safety parameters specified in the attachment to this certificate.

Director

National Supervision and Inspection Centre for Explosion Protection and Safety of Instrumentation

Issued Date 2015.08.20

This Certificate is valid for products compatible with the documents and samples approved by NEPSI.

103 Cao Bao Road
Shanghai 200233, China

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Email: info@nepsi.org.cn

Tel: +86 21 64368180
Fax: +86 21 64844580

Edition 05

国家级仪器仪表防爆安全监督检验站

National Supervision and Inspection Centre for
Explosion Protection and Safety of Instrumentation

(GYJ15.1403) **(Attachment Ⅰ)**

Attachment Ⅰ

(Translation)

Retractable Probe Control Unit type Unical 9000–X… and Uniclean 900–X…, manufactured by Knick Elektronische Messgeräte GmbH & Co. KG，have been approved by National Supervision and Inspection Centre for Explosion Protection and Safety of Instrumentation (NEPSI) in accordance with the following standards:

GB3836.1–2010 Explosive atmospheres – Part 1: Equipment – General requirements
GB3836.4–2010 Explosive atmospheres – Part 4: Equipment protection by Intrinsic safety "i"
GB12476.1–2013 Electrical apparatus for use in the presence of combustible dust – Part 1: General requirements
GB12476.4–2010 Electrical apparatus for use in the presence of combustible dust – Part 4: Protection by intrinsic safety "iD"

Retractable Probe Control Unit type Unical 9000–X… and Uniclean 900–X… are approved with explosion marking of Ex ia Ⅱ CT4 or Ex iaD 21 T70, the enclosure satisfies degree of protection IP65 according to GB4208-2008. The certificate number is GYJ15.1403.

Ⅰ. SPECIAL REQUIREMENTS

1.1 Permissible ambient temperature range: +2℃~+50℃.

1.2 Electrical safety parameters:

Terminal Code	Max.input voltage Ui (V)	Max.input current Ii（mA）	Max.input power Pi（W）	Maximum internal parameters	
				Ci(μF)	Li(mH)
Auxiliary external power supply: KL19, KL21	30	--	1	0	0
Auxiliary power supply: KL19, KL20	Only for connection to the certified Unical 9000X Communication Module type PHU 3400X-110 or Triple RS485 Module type FIU 3400X-140-2.				
Interface RS485: KL17, KL18, KL19	5	257	--	0	0
	Only for connection to the certified Unical 9000X Communication Module type PHU 3400X-110 or Triple RS485 Module type FIU 3400X-140-2.				

(GYJ15.1403) **(Attachment Ⅰ)**

Outputs to DCS: KL31, KL32, KL33, KL34	30	100	0.8	0.012	0
DCS inputs: KL36～KL39 KL40, KL41 KL42, KL43	30	--	--	0	0
Service Switch circuit: KL8, KL9, KL10, KL11	Only for connection to the service Switch, which is part of the Retractable Probe Control Unit Cable length ＜100m.				
Pump circuit: KL45, KL46, KL47, KL48, Kl49, KL50, KL51	Only for connection to the media adapter/dosing pumps, which is part of the Retractable Probe Control Unit Cable length ＜100m.				
Probe circuit: KL12, KL13, KL14	Only for connection to process connections, which is part of the Retractable Probe Control Unit Cable length ＜100m.				

Terminal Code	Max.output voltage Uo (V)	Max.output current Io（mA）	Max.output power Po（mW）	Maximum external parameters	
				Co(μF)	Lo(mH)
Emergency Shutdow: KL15, KL16	30	146	1000	0.066	1
Leakage circuit: KL1, KL2	5	8	10	5	2
Interface RS485: KL17, KL18, KL19	5	257	--	3.5	1.2

1.3 The enclosure shall be kept from the dust, but the dust shall not be blown by compressed air.

1.4. Users are forbidden to change the configuration to ensure the explosion protection performance of the equipment. Any faults shall be settled with experts from the manufacturer.

1.5. During installation, operation and maintenance, users shall comply with the relevant requirements of the product instruction manual, GB3836.13-2013 "Explosive atmospheres-Part 13: Equipment repair, overhaul and reclamation", GB3836.15-2000 "Electrical apparatus for explosive gas atmospheres Part 15: Electrical installations in hazardous areas (other than mines)", GB3836.16-2006 "Electrical apparatus for explosive gas atmospheres Part 16: Inspection and maintenance of electrical installation (other than mines)", GB3836.18-2010 "Electrical atmospheres – Part 18: Intrinsically safe system", GB15577-2007 "Safety regulations for the protection of dust explosion", GB12476.2-2010"Electrical apparatus for use in the presence of combustible dust - Part 2: Selection and installation" and GB50257-2014 "Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering".

(GYJ15.1403) (Attachment Ⅰ)

Ⅱ. MANUFACTURER'S RESPONSIBILITY

2.1 The instruction manual shall include all the clauses mentioned above.

2.2 The manufacturer shall exactly conform to the documents approved by NEPSI.

2.3 The nameplate shall add the following:

2.3.1 Identification of NEPSI.

2.3.2 Certificate No.

National Supervision and Inspection Centre
For Explosion Protection and Safety of Instrumentation
August 20, 2015

防 爆 合 格 证

证 号：GYJ15.1403

由 Knick Elektronische Messgeräte GmbH & Co. KG 制造的产品：

(地址： Beuckestrasse 22, D-14163 Berlin, Germany)

名　　称　自清洗控制器

型号规格　Unical 9000–X...、Uniclean 900–X...

防爆标志　Ex ia ⅡCT4 Gb、Ex iaD 21 T70

产品标准　/

图样编号　/

经图样及技术文件的审查和样品检验，确认上述产品符合 GB 3836.1-2010、GB 3836.4-2010、GB 12476.1-2013、GB 12476.4-2010 标准，特颁发此证。

本证书有效期：2015 年 8 月 20 日至 2020 年 8 月 19 日

备注 1. 安全使用注意事项见本证书附件。
2. 本安电气参数见本证书附件。

站长

国家级仪器仪表防爆安全监督检验站

颁发日期二〇一五年八月二十日

本证书仅对与认可文件和样品一致的产品有效。

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版本05

国家级仪器仪表防爆安全监督检验站
National Supervision and Inspection Centre for
Explosion Protection and Safety of Instrumentation

(GYJ15.1403) (Attachment Ⅰ)

GYJ15.1403防爆合格证附件Ⅰ

由Knick Elektronische Messgeräte GmbH & Co. KG生产的Unical 9000 - X...和Uniclean 900 - X...系列自清洗控制器，经国家级仪器仪表防爆安全监督检验站(NEPSI)检验，符合下列标准：

GB3836.1 - 2010 爆炸性环境 第1部分：设备 通用要求
GB3836.4 - 2010 爆炸性环境 第4部分：由本质安全型"i"保护的设备
GB12476.1 - 2013 可燃性粉尘环境用电气设备 第1部分：通用要求
GB12476.4 - 2010 可燃性粉尘环境用电气设备 第4部分：本质安全型"iD"

Unical 9000 - X...和Uniclean 900 - X...系列自清洗控制器防爆标志为Ex ia IICT4 Gb和Ex iaD 21 T70，外壳防护等级IP65，防爆合格证号为GYJ15.1403。

一、产品使用注意事项

1. 使用环境温度：+2℃~+50℃。
2. 电气安全参数：

端子代号	最高输入电压 Ui (V)	最大输入电流 Ii (mA)	最大输入功率 Pi (W)	最大内部等效参数	
				Ci(μF)	Li(mH)
外部辅助电源 KL19, KL21	30	--	1	0	0
辅助电源: KL19, KL20	只能与PHU 3400X-110型Unical 9000X通讯模块或FIU 3400X-140-2型RS485通讯模块连接				
RS485接口: KL17, KL18, KL19	5	257	--	0	0
	只能与PHU 3400X-110型Unical 9000X通讯模块或FIU 3400X-140-2型RS485通讯模块连接				
输出至DCS: KL31, KL32, KL33, KL34	30	100	0.8	0.012	0

DCS输入: KL36～KL39 KL40, KL41 KL42, KL43	30	--	--	0	0
维护切换电路 KL8, KL9, KL10, KL11	只能与本装置自身所配置的维护切换开关连接，电缆长度小于100m。				
泵电路 KL45, KL46, KL47, KL48, Kl49, KL50, KL51	只能与本装置自身所配置的介质适配配器/输送泵连接，电缆长度小于100m。				
探头电路 KL12, KL13, KL14	只能与本装置自身所配置的过程连接件连接，电缆长度小于100m。				

端子代号	最高输出电压 Uo	最大输出电流 Io (mA)	最大输出功率 Po (mW)	最大外部参数	
				Co(μF)	Lo(mH)
紧急切断电路 KL15, KL16	30	146	1000	0.066	1
泄漏电路 KL1, KL2	5	8	10	5	2
RS485接口: KL17, KL18, KL19	5	257	--	3.5	1.2

3．应当保持产品外壳表面清洁，以防粉尘堆积，但严禁用压缩空气吹扫。

4．用户不得自行更换该产品的零部件，应会同产品制造商共同解决运行中出现的故障，以杜绝损坏现象的发生。

5．产品的安装、使用和维护应同时遵守产品说明书、GB3836.13－2013“爆炸性环境 第13部分：设备的修理、检修、修复和改造”、GB3836.15－2000“爆炸性气体环境用电气设备 第15部分：危险场所电气安装（煤矿除外）”、GB3836.16－2006“爆炸性气体环境用电气设备 第16部分：电气装置的检查和维护（煤矿除外）”、GB3836.18－2010“爆炸性环境 第18部分：本质安全系统”、GB15577－2007“粉尘防爆安全规程”、GB12476.2－2010“可燃性粉尘环境用电气设备 第2部分：选型和安装”和GB50257－2014“电气装置安装工程爆炸和火灾危险环境 电气装置施工及验收规范”的有关规定。

二、制造厂责任

1．产品制造厂必须将上述使用注意事项纳入该产品使用说明书；

2．制造厂必须严格按照NEPSI认可的文件资料生产；

3．产品铭牌中必须补充下列内容：

NEPSI Certificate of Conformity
Unical® 9000X, Uniclean® 900X

(GYJ15.1403) (Attachment Ⅰ)

3.1 NEPSI认可标志

3.2 防爆合格证号

国家级仪器仪表防爆安全监督检验站

二〇一五年八月二十日

第 3 页 共 3 页

Weitergabe sowie Vervielfältigung dieser Unterlage, Verwertung und Mitteilung ihres Inhalts nicht gestattet, soweit nicht ausdrücklich zugestanden.

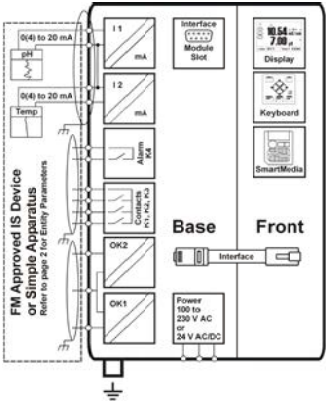
Copying of this document and giving it to others and use or communication for the contents therefore, are forbidden without express authority.

Protos System Type 3400X ×/×××

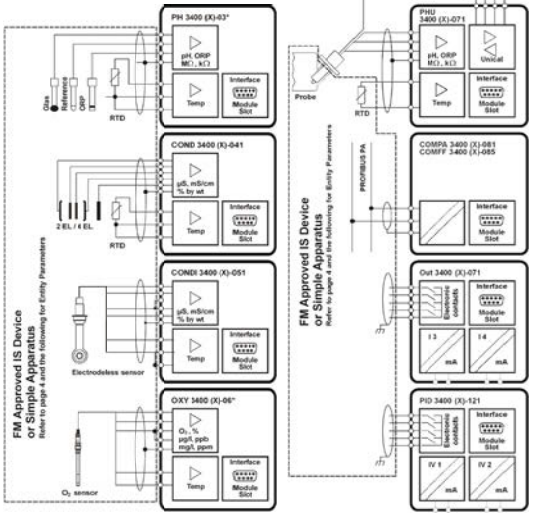
Cl I, II, III, Div I, Gps A, B, C, D, E, F, G or Cl I Zone 0 Gp IIC

Hazardous Location
BASE 3400 X ×/×××, Front 3400 X ×/01×
Class I, Division 2, Groups A, B, C & D T4
Cl I Zone 2 AEx nA IIC
Class I, Zone 1, AEx me ib [ia] Group IIC T4
Enclosure Type 4X, Tamb = - 20 °C to + 50 °C

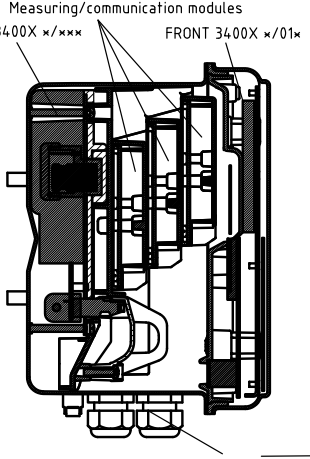
Measuring modules / Communication modules
Class I, Division 2, Groups A, B, C & D T4
Cl I Zone 2 AEx nA IIC
Class I, Zone 1, AEx ib [ia] Group IIC T4

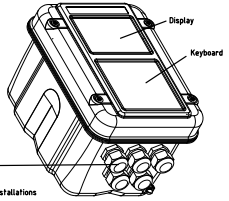


Protos 3400 (X)



Measuring/communication modules
(additional modules are intended)
for Entry Parameters refer to page 4 and the following





Verteiler: FUL (2x)			Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m	Oberfläche	Maßstab	page 1
					Halbzeug	
				Datum	Name	Benennung: Control drawing FM Protos Type 3400X ×/××× System overview
			Bearb.	28.08.03	dam	
			Gepr. (KON)			
			Freigabe (FGL)			
			Schutzvermerk nach DIN 34 beachten			Zeichnungsnummer: 201.003-170
1	overview	07.07.05	dam			
Nr.	AE	Datum	Bearbeiter FGL KON	Knick Elektronische Messgeräte GmbH & Co. KG		Ungültig ab: / Ersetzt durch:

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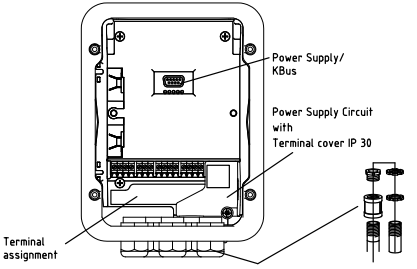
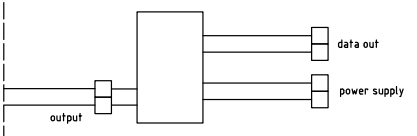
Protos Type 3400X */***

Protos Module Type BASE 3400X */***
Hazardous Location
Class I, Division 2, Groups A, B, C & D T4
Cl I Zone 2 AEx nA IIC
Class I, Zone 1, AEx me ib [ia] Group IIC T4
Enclosure Type 4X, Tamb = - 20 °C to + 50 °C



Non-Hazardous Location

Power Supply for the switching circuits K1, K2, K3, K4
and for the OK-input circuits OK1, OK2



NOTES :

1: V_{max} , U_i > V_{oc} , V_t or U_o I_{max} , I_i > I_{sc} , I_t or I_o P_{max} > P_o
$C_i + C_{cable} < C_a$ or C_o $L_i + L_{cable} < L_a$ or L_o

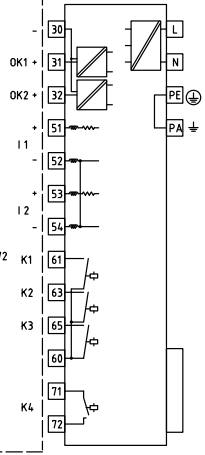
Hazardous Location
Class I, DIV1, Zone 0, IIC

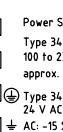
Entity Parameters:
Class I, Division 1, Groups A, B, C & D
Class II, Division 1, Groups E, F & G
Class III
Class I, Zone 0, AEx ia, Group IIC

Terminals 30/31 and 30/32
V_{max}, U_i = 30 V
I_{max}, I_i = 500 mA
P_{max}, P_i = 2.17 W
C_i = 0
L_i = 0

Terminals 51/52 and 53/54
V_t, V_{oc} = 17 V
I_t, I_{sc} = 84 mA
P_{max} = 357 mW
C_a, C_o = 243 nF
L_a, L_o = 3 mH

Terminals 60/61, 60/63, 60/65 and 71/72
V_{max}, U_i = 30 V
I_{max}, I_i = 500 mA
P_{max}, P_i = 2.17 W
C_i = 0
L_i = 0





Power Supply Circuit L, N, PE
Type 3400 */VPW
100 to 230 V AC - 10 %, + 15 %
approx. 15 VA, 48 to 62 Hz

Type 3400 X */24V
24 V AC/DC
AC: -15 % + 10 % approx. 15 VA, 48 to 62 Hz
DC: -15 % + 20 % approx. 8 W

Rated conductor cross section 2.5 mm²/AWG 14
Max. conductor cross section 4 mm²/AWG 12
Min. conductor cross section 0.2 mm²/AWG 24
Rated conductor cross section
(when using two conductors of same size and type)
-rigid 0.2 - 1.5 mm²/AWG 24 - 16
-flexible 0.2 - 1.5 mm²/AWG 24 - 16

Power Supply/KBus
intrinsic safety
only for connection to
Modules Protos Type *** 3400 X-*** and
the door Protos Type Front 3400 X */***

The power supply circuit is infallibly galvanically seperated from all other circuits up to 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 seperated 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.
The power supply and the KBus are galvanically connected.

Installation Notes

1. The Intrinsic Safety Entity concept allows the interconnection of FM Approved Intrinsically safe devices with entity parameters not specifically examined in combination as a systems when:
   U_o or V_{oc} or $V_t \leq V_{max}$, I_o or I_{sc} or $I_t \leq I_{max}$, $P_o \leq P_i$, C_a or $C_o \geq \sum C_i + \sum C_{cable}$,
   For inductance use either L_a or $L_o \geq \sum L_i + \sum L_{Cable}$ or $L_a/R_a \leq (L_i/R_i + L_{cable}/R_{cable})$ and $L_i/R_i \leq (L_a/R_a$ or $L_o/R_o)$
2. Dust-tight conduit seals must be used when installed in Class II and Class III environments.
3. Control equipment connected to the Associated Apparatus must not use or generate more than 250 V_{rms} or V_{dc}.
4. Installation should be in accordance with ANSI/ISA RP12.06.01 (except chapter 5 for FISCO Installations). "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code® (ANSI/NFPA 70) Sections 504 and 505.
5. The configuration of associated Apparatus must be FM Approved under the associated concept.
6. Associated Apparatus manufacturer's installation drawing must be followed when installing this equipment.
7. The Protos Type BASE 3400 X */*** are Approved for Class 1, Zone 0, applications. If connecting AEx [ib] associated Apparatus or AEx ib I.S. Apparatus to the Protos Type BASE 3400 X */*** the I.S. circuit is only suitable for Class 1, Zone 1, or Class 1, Zone 2, and is not suitable for Class 1, Zone 0 or Class 1, Division 1, Hazardous (Classified) Locations.
8. No revision to drawing without prior FM Approvals authorisation.
9. The intrinsically safe apparatus or the associated apparatus connecting to 30, 31, 32, 51, 52, 53, 54, 60, 61, 63, 65, 71, 72, must be FM Approved or be a simple apparatus (a device which will neither generate nor store more than 1.2 V, 0.1 A, 25 mW or 20 mJ).

Verteiler: FUL (2x)				Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m	Oberfläche	Maßstab Halbzeug	page 2
					Datum	Name	Benennung: control drawing FM Protos Type BASE 3400X */***
				Bearb.	28.08.03	dam	
				Gepr. (KON)			
				Freigabe(FGL)			
				Schutzvermerk nach DIN 34 beachten			Zeichnungsnummer: 201.003-170
1	Install. Notes	07.07.05	dam	Knick > Elektronische Messgeräte GmbH & Co. KG		Ungültig ab:	Ersetzt durch:
Nr.	AE	Datum	Bearbeiter	FGL KON			

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Protos Type 3400X */***

Protos Module Type FRONT 3400X */01*

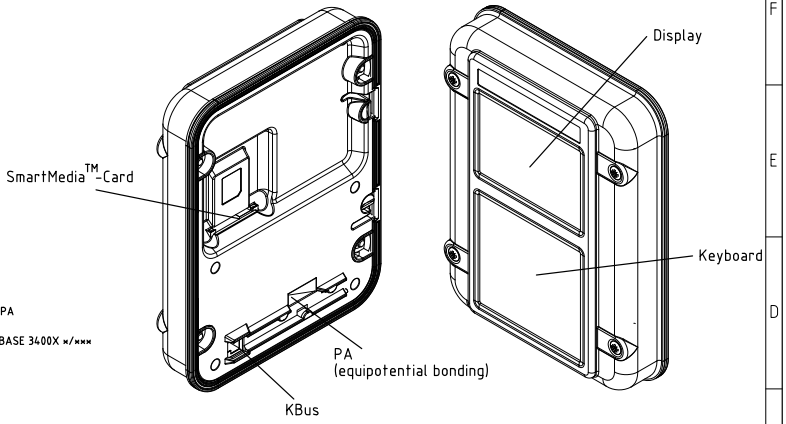
Hazardous Location

Class I, Division 2, Groups A, B, C & D T4

Cl I Zone 2 AEx nA IIC

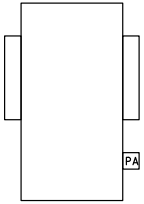
Class I, Zone 1, AEx ib Group IIC T4

Enclosure Type 4X, Tamb = - 20 °C to + 50 °C



Slot for SmartMedia™-Card,
only for SmartMedia™-Card
Type ZU 0543 by Knick

Protos Module Type FRONT 3400X *-01*
may be opened temporarily during operation
for inserting/replacing the SmartMedia™-Card



Power Supply/KBus/PA
for connection to
Protos Module Type BASE 3400X */***

Verteiler: FUL (2x)				Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m	Oberfläche	Maßstab page 3
						Halbzeug
					Datum / Name	Benennung
				Bearb.	28.08.03 dam	control drawing FM
				Gepr. (KON)		Protos Type FRONT 3400X */01*
				Freigabe (FGL)		
				Schutzvermerk nach DIN 34 beachten		Zeichnungsnummer
1	Texte	07.07.05	dam	Knick Elektronische Messgeräte GmbH & Co. KG		201.003-170
Nr.	AE	Datum	Bearbeiter FGL KON			Ungültig ab: / Ersetzt durch:

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Protos System Type 3400X ×/×××

Protos Module Type PH 3400X-03×

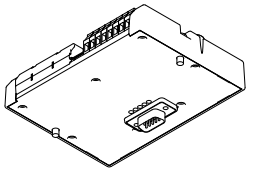
Hazardous Location

Class I, Division 2, Groups A, B, C & D T4

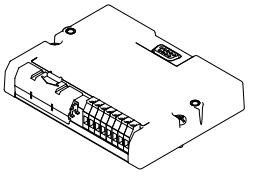
Class I Zone 2, AEx nA IIC; Class III, Division 1

Class I, Zone 1, AEx ib [ia] Group IIC T4

Tamb = - 20 °C to + 50 °C



Bottom side



Top side

Hazardous Location
Class I, DIV 1 or Zone 0, IIC

Class I, Division 1, Groups A, B, C & D
Class II, Division 1, Groups E, F & G
Class III
Class I, Zone 0, AEx ia, Group IIC

PH 3400X-032
PH 3400X-033

Entity Parameters:

Terminals 2, 8, 12, 13, 16 — MEAS EL. 2
V_t, U_o = 10 V
I_t, I_o = 20 mA
P_t, P_o = 25 mW
C_a, C_o = 1.5 µF
L_a, L_o = 1 mH

Terminals 14, 15 — REF EL. 8
V_t, U_o = 10 V
I_t, I_o = 14 mA
P_t, P_o = 35 mW
C_a, C_o = 1.26 µF
L_a, L_o = 1.2 mH

Terminals 17, 18, 19
V_t, U_o = 10 V
I_t, I_o = 10 mA
P_t, P_o = 12 mW
C_a, C_o = 1.2 µF
L_a, L_o = 1 mH

REF EL. 12
AUX EL. 13
+ 3 V 14
- 3 V 15
SHIELD 16

Terminals 2, 8, 12, 13, 16, 17, 18, 19
V_t, U_o = 10 V
I_t, I_o = 30 mA
P_t, P_o = 38 mW
C_a, C_o = 1.1 µF
L_a, L_o = 1 mH

RTD 17
RTD 18
SENSE 19

Terminals 2, 8, 12, 13, 14, 15, 16, 17, 18, 19
V_t, U_o = 10 V
I_t, I_o = 44 mA
P_t, P_o = 55 mW
C_a, C_o = 745 nF
L_a, L_o = 1 mH

Hazardous Location
Class I, DIV 1 or Zone 0, IIC

Class I, Division 1, Groups A, B, C & D
Class II, Division 1, Groups E, F & G
Class III
Class I, Zone 0, AEx ia, Group IIC

PH 3400X-035
PH 3400X-036

Entity Parameters:

Terminals 2, 8, 12, 13, 14, 15 — MEAS EL. 2
V_t, U_o = 12 V
I_t, I_o = 4.3 mA
P_t, P_o = 7.8 mW
C_a, C_o = 933 nF
L_a, L_o = 1 mH

Terminals 18, 19 — REF EL. 8
V_t, U_o = 7.2 V
I_t, I_o = 6.6 mA
P_t, P_o = 11.9 mW
C_a, C_o = 3 µF
L_a, L_o = 1 mH

Terminals 2, 8, 12, 13, 14, 15, 16, 18, 19
V_t, U_o = 12 V
I_t, I_o = 10.9 mA
P_t, P_o = 19.7 mW
C_a, C_o = 909 nF
L_a, L_o = 1 mH

SG 12
SOURCE 13
DRAIN 14
SHIELD 15
ISM DGND 16

Terminals 2, 8, 12, 15, 16, 17, 18, 19
V_t, U_o = 12 V
I_t, I_o = 23.4 mA
P_t, P_o = 42.2 mW
C_a, C_o = 911 nF
L_a, L_o = 1 mH

ISM DATA 17
RTD 18
RTD 19

Terminals 2, 8, 12, 13, 14, 15, 16, 17, 18, 19
V_t, U_o = 12 V
I_t, I_o = 26.1 mA
P_t, P_o = 47 mW
C_a, C_o = 909 nF
L_a, L_o = 1 mH

Power Supply/KBus
only to connect to
Protos Module BASE 3400X ×/××× or to
other Protos measuring & ouput modules

The measuring circuits are galvanically connected and are infallibly galvanically seperated from the power supply and the KBus up to a peak voltage of 60 V.

Installation Notes

1. The Intrinsic Safety Entity concept allows the interconnection of FM Approved Intrinsically safe devices with entity parameters not specifically examined in combination as a systems when: U_o or V_{oc} or $V_t \leq V_{max}$, I_o or I_{sc} or $I_t \leq I_{max}$, $P_o \leq P_i$, C_a or $C_o \geq \sum C_i + \sum C_{cable}$. For inductance use either L_a or $L_o \geq \sum L_i + \sum L_{cable}$ or $L_a/R_a \leq (L_a/R_a$ or $L_a/R_a)$ and $L_i/R_i \leq (L_a/R_a$ or $L_a/R_a)$
2. Installation should be in accordance with ANSI/ISA RP12.06.01 (except chapter 5 for FISCO Installations). "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code® (ANSI/NFPA 70) Sections 504 and 505.
3. No revision to drawing without prior FM Approvals authorisation.
4. The Intrinsically Safe Equipment connecting to 2, 8, 12, 13, 14, 15, 16, 17, 18, 19 must be FM Approved or be a Simple Apparatus.
5. Simple Apparatus is defined as a device that does not generates more than 1.5 V, 0.1 A or 25 mW.

Nr.	AE	Datum	Bearbeiter
3	pH 035/036 added	08.06.06	dam
2	Install. Notes	07.07.05	dam
1	PH 035/036	11.04.05	dam

Verteiler: FUL (2x)

Zul. Abweichungen für Maße ohne Toleranzangabe: ISO 2768 - m

Oberfläche

Maßstab: Halbzeug

page 4

	Datum	Name
Bearb.	28.08.03	dam
Gepr. (KON)		
Freigabe(FGL)		

Schutzvermerk nach DIN 34 beachten

Knick Elektronische Messgeräte GmbH & Co. KG

Benennung: control drawing FM
Protos Type PH 3400X-03×

Zeichnungsnummer: 201.003-170

Ungültig ab: | Ersetzt durch:

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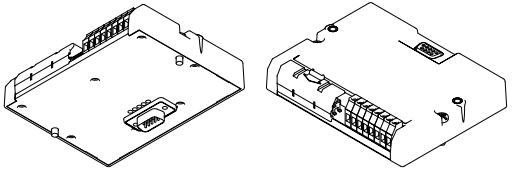
Protos System Type 3400X */***

Protos Module Type COND 3400X-04*

Hazardous Location
Class I, Division 2, Groups A, B, C & D T4
Cl I Zone 2 AEx nA IIC
Class I, Zone 1, AEx ib [ia] Group IIC T4
Tamb = - 20 °C to + 50 °C



Bottom side

Top side

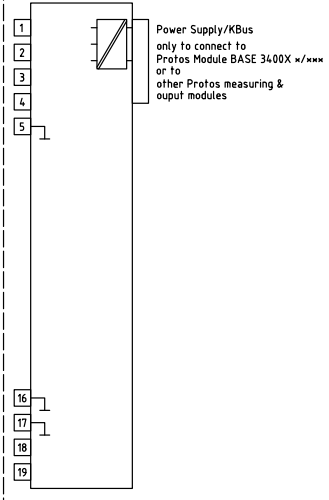
Hazardous Location
Class I, DIV 1 or Zone 0, IIC

Entity Parameters:
Class I, Division 1, Groups A, B, C & D
Class II, Division 1, Groups E, F & G
Class III
Class I, Zone 0, AEx ia, Group IIC

Terminals 1, 2, 3, 4, 5
V_t, U_o = 10 V
I_t, I_o = 112 mA
P_t, P_o = 139 mW
C_a, C_o = 1 µF
L_a, L_o = 1 mH

Terminals 16, 17, 18, 19
V_t, U_o = 10 V
I_t, I_o = 10 mA
P_t, P_o = 12 mW
C_a, C_o = 1.26 µF
L_a, L_o = 1 mH

Terminals 1, 2, 3, 4, 5, 16, 17, 18, 19
V_t, U_o = 10 V
I_t, I_o = 122 mA
P_t, P_o = 153 mW
C_a, C_o = 858 nF
L_a, L_o = 1 mH



The measuring circuits are galvanically connected and are infallibly galvanically seperated from the power supply and the KBus up to a peak voltage of 60 V.

Installation Notes

1. The Intrinsic Safety Entity concept allows the interconnection of FM Approved Intrinsically safe devices with entity parameters not specifically examined in combination as a systems when: U_o or V_{oc} or $V_t \leq V_{max}$, I_o or I_{sc} or $I_t \leq I_{max}$, $P_o \leq P_i$, C_a or $C_o \geq \sum C_i + \sum C_{cable}$, For inductance use either L_a or $L_o \geq \sum L_i + \sum L_{cable}$ or $L_o/R_a \leq (L_a/R_a$ or $L_o/R_o)$ and $L_i/R_i \leq (L_a/R_a$ or $L_o/R_o)$
2. Installation should be in accordance with ANSI/ISA RP12.06.01 (except chapter 5 for FISCO Installations). "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code® (ANSI/NFPA 70) Sections 504 and 505.
3. No revision to drawing without prior FM Approvals authorisation.
4. The Intrinsically Safe Equipment connecting to 1, 2, 3, 4, 5, 16, 17, 18, 19 must be FM Approved or be a Simple Apparatus.
5. Simple Apparatus is defined as a device that does not generates more than 1.5 V, 0.1 A or 25 mW.

Verteiler: FUL (Zx)	Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m	Oberfläche	Maßstab	page 5
			Holzbezug	
		Datum / Name	Benennung	control drawing FM Protos Type COND 3400X-04x
	Bearb.	28.08.03 dam		
	Gepr.(KON)			
	Freigabe(FGL)			
	Schutzvermerk nach DIN 34 beachten		Zeichnungsnummer	201.003-170
1 install. Notes 07.07.05 dam	Knick Elektronische Messgeräte GmbH & Co. KG		Ungültig ab:	Ersetzt durch:
Nr. AE Datum Bearbeiter FGL KON				

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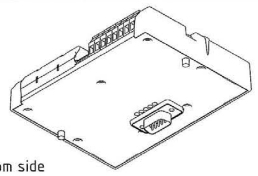
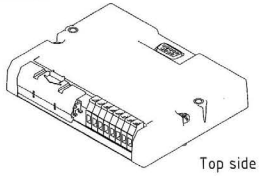
Protos System Type 3400X */***

Protos Module Type OXY 3400X-06*

Hazardous Location
Class I, Division 2, Groups A, B, C & D T4
Class I, Zone 2, AEx nA IIC; Class III, Division 1
Class I, Zone 1, AEx ib [ia] Group IIC T4
Tamb = - 20 °C to + 50 °C



Bottom side



Top side

Hazardous Location
Class I, DIV 1 or Zone 0, IIC

Class I, Division 1, Groups A, B, C & D
Class II, Division 1, Groups E, F & G
Class III
Class I, Zone 0, AEx ia, Group IIC

OXY 3400X-062
OXY 3400X-063

Entity Parameters:

Terminals 2, 8, 13, 14, 15, 16
V_t, U_o = 10 V
I_t, I_o = 10 mA
P_t, P_o = 13 mW
C_a, C_o = 1.5 µF
L_a, L_o = 1 mH

Terminals 17, 18
V_t, U_o = 10 V
I_t, I_o = 1 mA
P_t, P_o = 2 mW
C_a, C_o = 1.38 µF
L_a, L_o = 1 mH

Terminals 2, 8, 13, 14, 15, 16, 17, 18
V_t, U_o = 10 V
I_t, I_o = 11 mA
P_t, P_o = 14 mW
C_a, C_o = 1.38 µF
L_a, L_o = 1 mH

CATHODE	2
ANODE	8
ANODE	13
REFERENCE	14
GUARD	15
SHIELD	16
RTD	17
RTD	18

Hazardous Location
Class I, DIV 1 or Zone 0, IIC

Class I, Division 1, Groups A, B, C & D
Class II, Division 1, Groups E, F & G
Class III
Class I, Zone 0, AEx ia, Group IIC

OXY 3400X-065
OXY 3400X-066

Entity Parameters:

Terminals 2, 8, 12, 13
V_t, U_o = 10 V
I_t, I_o = 7.5 mA
P_t, P_o = 10 mW
C_a, C_o = 1.5 µF
L_a, L_o = 1 mH

Terminals 16, 17
V_t, U_o = 5 V
I_t, I_o = 1 mA
P_t, P_o = 1.5 mW
C_a, C_o = 4.4 µF
L_a, L_o = 5 mH

Terminals 2, 8, 12, 13, 16, 17
V_t, U_o = 10 V
I_t, I_o = 9 mA
P_t, P_o = 12 mW
C_a, C_o = 1.4 µF
L_a, L_o = 1 mH

Terminals 2, 8, 12, 13, 14, 15, 16, 17
V_t, U_o = 10 V
I_t, I_o = 19 mA
P_t, P_o = 24 mW
C_a, C_o = 1.4 µF
L_a, L_o = 1 mH

Terminals 18, 19
U_i, U_{max} = 6 V
I_i, I_{max} = 125 mA
P_i = 750 mW
C_i = 12 nF
L_i = negligibly small

CATHODE	2
ANODE	8
GUARD	12
SHIELD	13
DGND	14
DATA	15
RTD	16
RTD	17
INPUT 0(4) to 20 mA	18 (−) 19 (+)

Hazardous Location
Class I, DIV 1 or Zone 0, IIC

Class I, Division 1, Groups A, B, C & D
Class II, Division 1, Groups E, F & G
Class III
Class I, Zone 0, AEx ia, Group IIC

OXY 3400X-067

Entity Parameters:

Terminals 2, 8, 12, 13, 15
V_t, U_o = 10 V
I_t, I_o = 12 mA
P_t, P_o = 16 mW
C_a, C_o = 1.5 µF
L_a, L_o = 1 mH

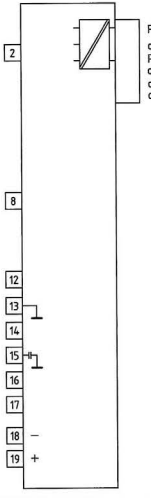
Terminals 13, 14
V_t, U_o = 5 V
I_t, I_o = 1 mA
P_t, P_o = 1.5 mW
C_a, C_o = 4.4 µF
L_a, L_o = 5 mH

Terminals 2, 8, 12, 13, 14, 15
V_t, U_o = 10 V
I_t, I_o = 13 mA
P_t, P_o = 17 mW
C_a, C_o = 1.4 µF
L_a, L_o = 1 mH

Terminals 2, 8, 12, 13, 14, 15, 16, 17
V_t, U_o = 10 V
I_t, I_o = 33 mA
P_t, P_o = 42 mW
C_a, C_o = 1.4 µF
L_a, L_o = 1 mH

Terminals 18, 19
U_i, U_{max} = 30 V
I_i, I_{max} = 125 mA
P_i = 1500 mW
C_i = 12 nF
L_i = negligibly small

CATHODE	2
ANODE	8
REFERENCE	12
GUARD/RTD	13
RTD	14
SHIELD	15
ISM DGND	16
ISM DATA	17
INPUT 0(4) to 20 mA	18 (−) 19 (+)



Power Supply/KBus
only to connect to
Protos Module BASE 3400X */***
or to
other Protos measuring &
ouput modules

Installation Notes

1. The Intrinsic Safety Entity concept allows the interconnection of FM Approved Intrinsically safe devices with entity parameters not specifically examined in combination as a systems when: U_o or V_{oc} or $V_t \leq V_{max}$, I_o or I_{sc} or $I_t \leq I_{max}$. $P_o \leq P_t$. C_a or $C_o \geq \sum C_i + \sum C_{cable}$.
   For inductance use either L_a or $L_o \geq \sum L_i + \sum L_{cable}$ or $L_o/R_o \leq (L_a/R_a$ or $L_o/R_o)$ and $L_i/R_i \leq (L_a/R_a$ or $L_o/R_o)$
2. Installation should be in accordance with ANSI/ISA RP12.06.01 (except chapter 5 for FISCO installations). "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code® (ANSI/NFPA 70) Sections 504 and 505.
3. No revision to drawing without prior FM Approvals authorisation.
4. The Intrinsically Safe Equipment connecting to 2, 8, 12, 13, 14, 15, 16, 17, 18, 19 must be FM Approved or be a Simple Apparatus.
5. Simple Apparatus is defined as a device that does not generates more than 1.5 V, 0.1 A or 25 mW.

The measuring circuits are galvanically connected and are infallibly galvanically seperated from the power supply and the KBus up to a peak voltage of 60 V.

WARNING: DO NOT USE IN OXYGEN ENRICHED ENVIRONMENTS WITH OXYGEN CONCENTRATION MORE THAN 21% BY VOLUME.

Nr	AE	Datum	Bearbeiter FEL KON
4	OXY 067	22.09.06	dam
3	Oxy 065/066 added	08.06.06	dam
2	Install. Notes	07.07.05	dam
1	OXY 065/066	11.04.05	dam

Verteiler: FEL (2x)

Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m

Oberfläche

Maßstab

Halbzeug

page 6

	Datum	Name
Bearb.	28.08.03	dam
Gepr.(KON)	27.7.07	
Freigabe(FEL)		

Benennung: control drawing FM Protos Type OXY 3400X-06*

Schutzvermerk nach DIN 34 beachten

Knick Elektronische Messgeräte GmbH & Co. KG

Zeichnungsnummer: 201.003-170

Ungültig ab: Ersetzt durch:

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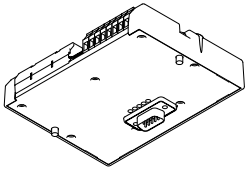
Protos System Type 3400X ×/×××

Protos Module Type PHU 3400X-11×

Hazardous Location
Class I, Division 2, Groups A, B, C & D T4
Cl I Zone 2 AEx nA IIC
Class I, Zone 1, AEx ib [ia] Group IIC T4
Tamb = - 20 °C to + 50 °C



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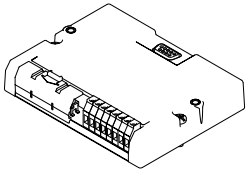


Top side

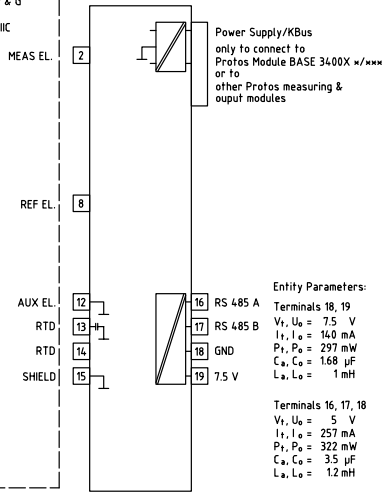
Hazardous Location
Class I, DIV 1 or Zone 0, IIC

Entity Parameters:
Class I, Division 1, Groups A, B, C & D
Class II, Division 1, Groups E, F & G
Class III
Class I, Zone 0, AEx ia, Group IIC

Terminals 2, 8, 12
V_t, U_o = 10 V
I_t, I_o = 20 mA
P_t, P_o = 25 mW
C_a, C_o = 1.5 µF
L_a, L_o = 1 mH

Terminals 13, 14, 15
V_t, U_o = 5 V
I_t, I_o = 10 mA
P_t, P_o = 12 mW
C_a, C_o = 6 µF
L_a, L_o = 1 mH

Terminals 2, 8, 12, 13, 14, 15
V_t, U_o = 10 V
I_t, I_o = 29 mA
P_t, P_o = 47 mW
C_a, C_o = 1.4 µF
L_a, L_o = 1 mH



Entity Parameters:

Terminals 18, 19
V_t, U_o = 7.5 V
I_t, I_o = 140 mA
P_t, P_o = 297 mW
C_a, C_o = 1.68 µF
L_a, L_o = 1 mH

Terminals 16, 17, 18
V_t, U_o = 5 V
I_t, I_o = 257 mA
P_t, P_o = 322 mW
C_a, C_o = 3.5 µF
L_a, L_o = 1.2 mH

The measuring circuits are galvanically connected.
The supply circuit Terminals 18, 19 and the interface circuit Terminals 16, 17 are galvanically connected.
The power supply and the KBus are galvanically connected.
The measuring circuits and supply circuit / interface circuit and power supply / KBus are infallibly galvanically separated from each other up to a peak voltage of 60 V.

Installation Notes

1. The Intrinsic Safety Entity concept allows the interconnection of FM Approved Intrinsically safe devices with entity parameters not specifically examined in combination as a systems when: U_o or V_{oc} or $V_t \leq V_{max}$, I_o or I_{sc} or $I_t \leq I_{max}$, $P_o \leq P_t$, C_a or $C_o \geq \sum C_i + \sum C_{cable}$. For inductance use either L_a or $L_o \geq \sum L_i + \sum L_{cable}$ or $L_e/R_e \leq (L_a/R_a$ or $L_o/R_o)$ and $L_i/R_i \leq (L_a/R_a$ or $L_o/R_o)$
2. Installation should be in accordance with ANSI/ISA RP12.06.01 (except chapter 5 for FISCO Installations). "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code® (ANSI/NFPA 70) Sections 504 and 505.
3. No revision to drawing without prior FM Approvals authorisation.
4. The Intrinsically Safe Equipment connecting to 2, 8, 12, 13, 14, 15, 16, 17, 18, 19 must be FM Approved or be a Simple Apparatus.
5. Simple Apparatus is defined as a device that does not generates more than 1.5 V, 0.1 A or 25 mW.

Verteiler: FUL (2x)				Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m	Oberfläche	Maßstab	page 7
						Halbzeug	
				Datum	Name	Benennung	control drawing FM Protos Type PHU 3400X-11×
				Bearb.	28.08.03 dam		
				Gepr.(KON)			
				Freigabe(FGL)			
				Schutzvermerk nach DIN 34 beachten		Zeichnungsnummer	201.003-170
1	Install. Notes	07.07.05	dam	Knick ›			
Nr.	AE	Datum	Bearbeiter	FGL KON	Elektronische Messgeräte GmbH & Co. KG	Ungültig ab:	Ersetzt durch:

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Protos System Type 3400X ×/×××

Protos Module Type OUT 3400X-07×

Protos Module PID 3400X-12×

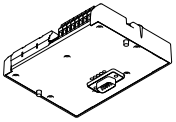
Hazardous Location

Class I, Division 2, Groups A, B, C & D T4

Cl I Zone 2 AEx nA IIC

Class I, Zone 1, AEx ib Group IIC T4

Tamb = - 20 °C to + 50 °C



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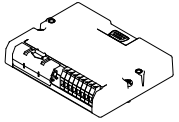


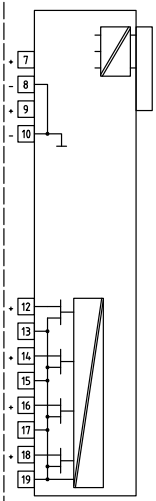
Top side

Hazardous Location
Class I, DIV 1 or Zone 0, IIC

Entity Parameters:
Class I, Division 1, Groups A, B, C & D
Class II, Division 1, Groups E, F & G
Class III
Class I, Zone 0, AEx ia, Group IIC

Terminals 7, 8, 9, 10
U_i , V_{max} = 30 V
I_i , I_{max} = 100 mA
P_i , P_{max} = 800 mW
C_i = 12 nF
L_i = 0

Terminals 12, 13, 14, 15, 16, 17, 18, 19
U_i , V_{max} = 30 V
I_i , I_{max} = 100 mA
P_i , P_{max} = 800 mW
C_i = 12 nF
L_i = 0

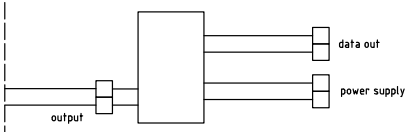


Power Supply/KBus
only to connect to
Protos Module BASE 3400X ×/×××
or to
other Protos measuring &
ouput modules

The switching circuits (terminals 12, 13, 14, 15, 16, 17, 18, 19) and the output circuits (terminals 7, 8, 9, 10) are safely galvanically isolated from each other and from the supply and the KBus, respectively, up to a crest value of the nominal voltage of 60V.
The two output circuits are galvanically connected.
The four switching circuits are galvanically connected.

Non-Hazardous Location

Power Supply for the switching circuits
output circuits Terminals 12, 13 and 14, 15 and 16, 17
and 18, 19 and 7, 8 and 9, 10



FM Approved
associated apparatus

NOTES :

1: V_{max} , U_i > V_{oc} , V_t or U_o I_{max} , I_i > I_{sc} , I_t or I_o P_{max} > P_o
$C_i + C_{cable} < C_a$ or C_o $L_i + L_{cable} < L_a$ or L_o

Installation Notes

1. The Intrinsic Safety Entity concept allows the interconnection of FM Approved Intrinsically safe devices with entity parameters not specifically examined in combination as a systems when: U_o or V_{oc} or $V_t \leq V_{max}$, I_o or I_{sc} or $I_t \leq I_{max}$, $P_o \leq P_i$. C_a or $C_o \geq \sum C_i + \sum C_{cable}$. For inductance use either L_a or $L_o \geq \sum L_i + \sum L_{cable}$ or $L_a/R_a \leq (L_a/R_a$ or L_a/R_a or $L_o/R_o)$ and $L_i/R_i \leq (L_a/R_a$ or $L_o/R_o)$
2. Control equipment connected to the Associated Apparatus must not use or generate more than 250 V_{rms} or V_{dc}.
3. Installation should be in accordance with ANSI/ISA RP12.06.01 (except chapter 5 for FISCO Installations). "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code® (ANSI/NFPA 70) Sections 504 and 505.
4. The configuration of associated Apparatus must be FM Approved under the associated concept.
5. Associated Apparatus manufacturer's installation drawing must be followed when installing this equipment.
6. The Modules OUT 3400X-07*/PID 3400X-12* are Approved for Class 1, Zone 0 applications. If connecting AEx [ib] associated Apparatus or AEx ib I.S. Apparatus to the Modules OUT 3400X-07*/PID 3400X-12* the I.S. circuit is only suitable for Class 1, Zone 1, or Class 1, Zone 2, and is not suitable for Class 1, Zone 0 or Class 1, Division 1, Hazardous (Classified) Locations.
7. No revision to drawing without prior FM Approvals authorisation.
8. The intrinsically safe apparatus or the associated apparatus connecting to 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19 must be FM Approved or be a simple apparatus.
9. Simple Apparatus is defined as a device that does not generates more than 1.5 V, 0.1 A or 25 mW.

Verteiler: FUL (2x)				Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m	Oberfläche	Maßstab Halbzeug	page 8
					Datum / Name	Benennung	control drawing FM Protos Type OUT 3400X-07× Protos Type PID 3400X-12×
				Bearb.	07.01.04 dam		
				Gepr. (KON)			
				Freigabe(FGL)			
				Schutzvermerk nach DIN 34 beachten		Zeichnungsnummer	201.003-170
1	Install. Notes	07.07.05	dam	Knick			
Nr.	AE	Datum	Bearbeiter	FGL KON	Elektronische Messgeräte GmbH & Co. KG	Ungültig ab:	Ersetzt durch:

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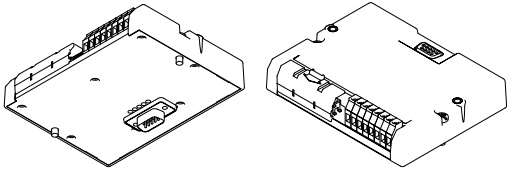
Protos System Type 3400X ×/×××

Protos Module Type CONDI 3400X-05×

Hazardous Location
Class I, Division 2, Groups A, B, C & D T4
Cl I Zone 2 AEx nA IIC
Class I, Zone 1, AEx ib [ia] Group IIC T4
Tamb = - 20 °C to + 50 °C



Bottom side

Top side

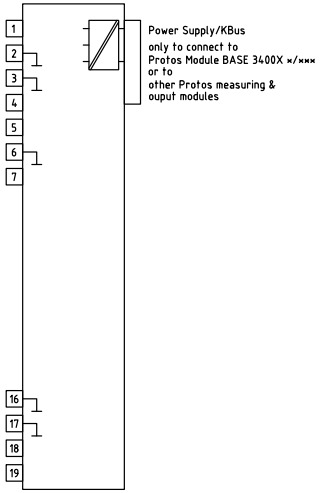
Hazardous Location
Class I, DIV 1 or Zone 0, IIC

Entity Parameters:
Class I, Division 1, Groups A, B, C & D
Class II, Division 1, Groups E, F & G
Class III
Class I, Zone 0, AEx ia, Group IIC

Terminals 1, 2, 3, 4, 5, 6, 7
V_t, U_o = 7 V
I_t, I_o = 45 mA
P_t, P_o = 26 mW
C_a, C_o = 1.4 µF
L_a, L_o = 12 mH

Terminals 16, 17, 18, 19
V_t, U_o = 5 V
I_t, I_o = 9.1 mA
P_t, P_o = 12 mW
C_a, C_o = 3.26 µF
L_a, L_o = 16 mH

Terminals 1, 2, 3, 4, 5, 6, 7, 16, 17, 18, 19
V_t, U_o = 7 V
I_t, I_o = 54.1 mA
P_t, P_o = 38 mW
C_a, C_o = 1.05 µF
L_a, L_o = 10 mH



Power Supply/KBus
only to connect to
Protos Module BASE 3400X ×/×××
or to
other Protos measuring &
ouput modules

The measuring circuits are galvanically connected and are infallibly galvanically seperated from the power supply and the KBus up to a peak voltage of 60 V.

Installation Notes

1. The Intrinsic Safety Entity concept allows the interconnection of FM Approved intrinsically safe devices with entity parameters not specifically examined in combination as a systems when: U_o or V_{oc} or $V_t \leq V_{max}$, I_o or I_{sc} or $I_t \leq I_{max}$, $P_o \leq P_i$, C_a or $C_o \geq \sum C_i + \sum C_{cable}$. For inductance use either L_a or $L_o \geq \sum L_i + \sum L_{cable}$ or $L_a/R_a \leq (L_a/R_a$ or $L_o/R_o)$ and $L_i/R_i \leq (L_a/R_a$ or $L_o/R_o)$
2. Installation should be in accordance with ANSI/ISA RP12.06.01 (except chapter 5 for FISCO Installations). "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code® (ANSI/NFPA 70) Sections 504 and 505.
3. No revision to drawing without prior FM Approvals authorisation.
4. The Intrinsically Safe Equipment connecting to 1, 2, 3, 4, 5, 6, 7, 16, 17, 18, 19 must be FM Approved or be a Simple Apparatus.
5. Simple Apparatus is defined as a device that does not generates more than 1.5 V, 0.1 A or 25 mW.

Verteiler: FUL (2x)				Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m	Oberfläche	Maßstab	page 9
						Halbzeug	
					Datum	Name	Benennung: control drawing Protos Protos Type CONDI 3400X-05×
				Bearb.	08.01.04	dam	
				Gepr.(KON)			
				Freigabe(FGL)			
				Schutzvermerk nach DIN 34 beachten			Zeichnungsnummer: 201.003-170
1	install. Notes	07.07.05	dam	Knick			
Nr.	AE	Datum	Bearbeiter FGL KON	Elektronische Messgeräte GmbH & Co. KG		Ungültig ab:	Ersetzt durch:

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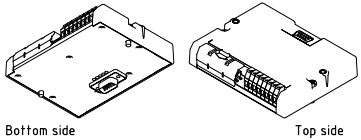
Protos System Type 3400X ×/×××

Protos Module Type COMPA 3400X-081 (for PROFIBUS-PA / MPB-IS)
Protos Module Type COMFF 3400X-085 (for FOUNDATION™ fieldbus / FF-H1)

Hazardous Location
Class I, Division 2, Groups A, B, C & D T4
Cl I Zone 2 AEx nA IIC
Class I, Zone 1, AEx ib [ia] Group IIC T4
Tamb = - 20 °C to + 50 °C

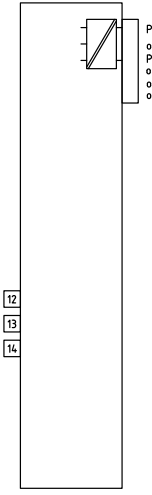


Bottom side Top side

Hazardous Location
Class I, DIV 1 or Zone 0, IIC

Entity Parameters:
Terminals 12, 13, 14
Class I, Division 1, Groups A, B, C & D
Class II, Division 1, Groups E, F & G
Class III
Class I, Zone 0, AEx ia, Group IIC

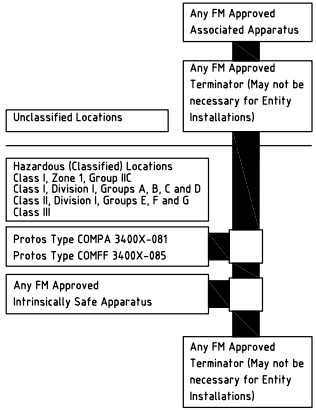
BUS Connection Parameters
see table 1



The bus connection is infallibly galvanically separated from the KBus up to a peak voltage of 60 V.

table 1

Concept	Groups	V_{max} (V)	I_{max} (mA)	P_{max} (W)	C_i (nF)	L_i (µH)
Entity	IIC/ABCDEFG	24	250	1.5	5	10
FISCO	IIC/ABCDEFG	17.5	380	5.32		



FISCO rules

The FISCO Concept allows the interconnection of intrinsically safe apparatus to associated apparatus not specifically examined in such combination. The criterion for such interconnection is that the voltage (V_{max}), the current (I_{max}) and the power (P_i) which intrinsically safe apparatus can receive and remain intrinsically safe, considering faults, must be equal or greater than the voltage (U_o, V_{oc}, V_t), the current (I_o, I_{sc}, I_t) and the power (P_o) which can be provided by the associated apparatus (supply unit). In addition, the maximum unprotected residual capacitance (C_i) and inductance (L_i) of each apparatus (other than the terminators) connected to the Fieldbus must be less than or equal to 5 nF and 10 µH respectively.
In each I.S. Fieldbus segment only one active source, normally the associated apparatus, is allowed to provide the necessary power for the Fieldbus system. The allowed voltage (U_o, V_{oc}, V_t) of the associated apparatus used to supply the bus must be limited to the range of 14 V d.c. to 24 V d.c. All other equipment connected to the bus cable has to be passive, meaning that the apparatus is not allowed to provide energy to the system, except to a leakage current of 50 µA for each connected device. Separately powered equipment needs a galvanic isolation to insure that the intrinsically safe Fieldbus circuit remains passive.
The cable used to interconnect the devices needs to comply with the following parameters:
Loop resistance R': 15 .. 150 Ω/km
Inductance per unit length L': 0.4 .. 1 mH/km

Capacitance per unit length C': 80 .. 200 nF/km
C' = C' line/line + 0.5 C' line/screen, if both lines are floating
or
C' = C' line/line + C' line/screen, if the screen is connected to one line
Length of spur Cable: max. 30 m
Length of trunk cable: max. 1 km
Length of splice: max. 1 m
Terminators
At each end of the trunk cable an approved line terminator with the following parameters is suitable:
R = 90 .. 100 Ω
C = 0 .. 2.2 µF
System evaluation
The number of passive devices like transmitters, actuators, connected to a single bus segment is not limited due to I.S. reasons. Furthermore, if the above rules are respected, the inductance and capacitance of the cable need not to be considered and will not impair the intrinsic safety of the installation.

Installation Notes For FISCO and Entity Concepts

1. The Intrinsic Safety Entity concept allows the interconnection of FM Approved intrinsically safe devices with entity parameters not specifically examined in combination as a systems when: U_o or V_{oc} or $V_t \leq V_{max}$, I_o or I_{sc} or $I_t \leq I_{max}$, $P_o \leq P_i$. C_a or $C_a \geq \sum C_i + \sum C_{cable}$. For inductance use either L_a or $L_a \geq \sum L_i + \sum L_{cable}$ or $L_a/R_a \leq (L_i/R_i$ or $L_{cable}/R_{cable})$ and $L_i/R_i \leq (L_a/R_a$ or $L_{cable}/R_{cable})$
2. The Intrinsic Safety FISCO concept allows the interconnection of FM approved intrinsically safe devices with FISCO parameters not specifically examined in combination as a system when: U_o or V_{oc} or $V_t \leq V_{max}$, I_o or I_{sc} or $I_t \leq I_{max}$, $P_o \leq P_i$.
3. Control equipment connected to the Associated Apparatus must not use or generate more than 250 V_{rms} or V_{dc}.
4. Installation should be in accordance with ANSI/ISA RP12.06.01 (except chapter 5 for FISCO Installations).
5. "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code® (ANSI/NFPA 70) Sections 504 and 505.
6. The configuration of associated Apparatus must be FM Approved under the associated concept.
7. Associated Apparatus manufacturer's installation drawing must be followed when installing this equipment.
8. The Protos Type COMPA 3400X-081 and Type COMFF 3400X-085 are Approved for Class 1, Zone 0, applications. If connecting AEx [ia] associated Apparatus or AEx ib I.S. Apparatus to the Protos Type COMPA 3400X-081 and Type COMFF 3400X-085 the I.S. circuit is only suitable for Class 1, Zone 1, or Class 1, Zone 2, and is not suitable for Class 1, Zone 0 or Class 1, Division 1, Hazardous (Classified) Locations.
9. No revision to drawing without prior FM Approvals authorisation.
10. Simple Apparatus is defined as a device that does not generates more than 1.5 V, 0.1 A or 25 mW.

Verteiler: FUL (2x)				Zul. Abweichungen für Maße ohne Toleranzangabe	Oberfläche	Maßstab	page 10
				ISO 2768 - m		Halbzeug	
					Datum / Name	Benennung	control drawing FM Protos Type COMPA 3400X-081 Protos Type COMFF 3400X-085
				Bearb.	15.01.04 dam		
				Gepr. (KON)			
				Freigabe(FGL)			
				Schutzvermerk nach DIN 34 beachten		Zeichnungsnummer	201.003-170
1	FISCO Rules	07.07.05	dam	Knick > Elektronische Messgeräte GmbH & Co. KG		Ungültig ab:	Ersetzt durch:
Nr.	AE	Datum	Bearbeiter	FGL KON			

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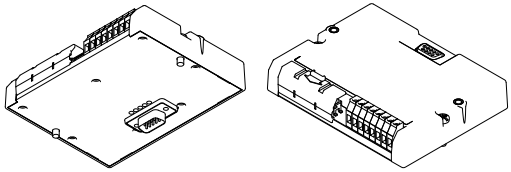
Protos System Type 3400X ×/×××

Protos Module Type CO_2 3400X-13×

Hazardous Location
Class I, Division 2, Groups A, B, C & D T4
Class I Zone 2, AEx nA IIC; Class III, Division 1
Class I, Zone 1, AEx ib [ia] Group IIC T4
Tamb = – 20 °C to + 50 °C



Bottom side

Top side

Hazardous Location
Class I, DIV 1 or Zone 0, IIC

Class I, Division 1, Groups A, B, C & D
Class II, Division 1, Groups E, F & G
Class III
Class I, Zone 0, AEx ia, Group IIC

CO_2 3400X-130

Entity Parameters:

Terminals 2, 8, 12, 13, 14, 15	MEAS EL.	2
V_t, U_o = 12 V I_t, I_o = 4.3 mA P_t, P_o = 7.8 mW C_a, C_o = 933 nF L_a, L_o = 1 mH		
Terminals 18, 19	REF EL.	8
V_t, U_o = 7.2 V I_t, I_o = 6.6 mA P_t, P_o = 11.9 mW C_a, C_o = 3 µF L_a, L_o = 1 mH		
Terminals 2, 8, 12, 13, 14, 15, 18, 19	SG	12
V_t, U_o = 12 V I_t, I_o = 10.9 mA P_t, P_o = 19.7 mW C_a, C_o = 909 nF L_a, L_o = 1 mH	SOURCE	13
	DRAIN	14
	SHIELD	15
Terminals 2, 8, 12, 15, 16, 17, 18, 19	ISM DGND	16
V_t, U_o = 12 V I_t, I_o = 23.4 mA P_t, P_o = 42.2 mW C_a, C_o = 911 nF L_a, L_o = 1 mH	ISM DATA	17
	RTD	18
Terminals 2, 8, 12, 13, 14, 15, 16, 17, 18, 19	RTD	19
V_t, U_o = 12 V I_t, I_o = 26.1 mA P_t, P_o = 47 mW C_a, C_o = 909 nF L_a, L_o = 1 mH		

Power Supply/KBus
only to connect to
Protos Module BASE 3400X ×/××× or to
other Protos measuring & ouput modules

The measuring circuits are galvanically connected and are infallibly galvanically seperated from the power supply and the KBus up to a peak voltage of 60 V.

Installation Notes

1. The Intrinsic Safety Entity concept allows the interconnection of FM Approved Intrinsically safe devices with entity parameters not specifically examined in combination as a systems when: U_o or V_{oc} or $V_t \leq V_{max}$, I_o or I_{sc} or $I_t \leq I_{max}$, $P_o \leq P_i$, C_a or $C_o \geq \sum C_i + \sum C_{cable}$.
   For inductance use either L_a or $L_o \geq \sum L_i + \sum L_{cable}$ or $L_a/R_a \leq (L_i/R_i + L_{cable}/R_{cable})$ and $L_i/R_i \leq (L_a/R_a$ or $L_o/R_o)$
2. Installation should be in accordance with ANSI/ISA RP12.06.01 (except chapter 5 for FISCO Installations). "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code® (ANSI/NFPA 70) Sections 504 and 505.
3. No revision to drawing without prior FM Approvals authorisation.
4. The Intrinsically Safe Equipment connecting to 2, 8, 12, 13, 14, 15, 16, 17, 18, 19 must be FM Approved or be a Simple Apparatus.
5. Simple Apparatus is defined as a device that does not generates more than 1.5 V, 0.1 A or 25 mW.

Verteiler: FUL (2x)				Zul. Abweichungen für Maße ohne Toleranzangabe	Oberfläche	Maßstab: page 11
				ISO 2768 - m		Halbzeug
					Datum / Name	Benennung: control drawing FM Protos Type CO2 3400X-13×
				Bearb.	09.06.06 dam	
				Gepr.(KON)		
				Freigabe(FGL)		
				Schutzvermerk nach DIN 34 beachten		Zeichnungsnummer: 201.003-170
Nr.	AE	Datum	Bearbeiter FGL KON	Knick Elektronische Messgeräte GmbH & Co. KG		Ungültig ab: / Ersetzt durch:

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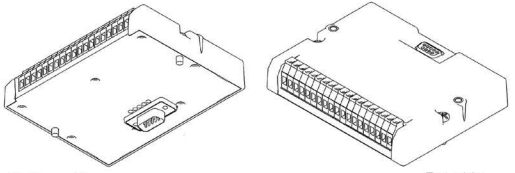
Protos System Type 3400X */***

Protos Module Type FIU 3400X-14*

Hazardous Location
Class I, Division 2, Groups A, B, C & D T4
Class I, Zone 2, AEx nA IIC; Class III, Division 1
Class I, Zone 1, AEx ib [ia] Group IIC T4
Tamb = - 20 °C to + 50 °C

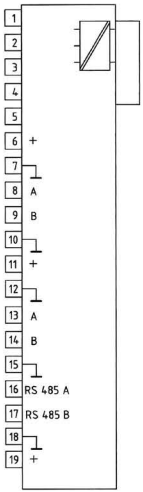


Bottom side | Top side

Hazardous Location Class I, DIV 1 or Zone 0, IIC Class I, Division 1, Groups A, B, C & D Class II, Division 1, Groups E, F & G Class III Class I, Zone 0, AEx ia, Group IIC FIU 3400X-140 Terminals 1, 2, 3, 4, 5 do not connect InduCon II Terminals 6, 7, 8, 9, 10 InduCon I Terminals 11, 12, 13, 14, 15 V_t, U_o = 5.1 V I_t, I_o = 130 mA P_t, P_o = 166 mW C_a, C_o = 88 µF L_a, L_o = 2 mH Unical Interface RS 485 Terminals 16, 17, 18 V_t, U_o = 5.0 V I_t, I_o = 118 mA P_t, P_o = 153 mW C_a, C_o = 100 µF L_a, L_o = 2 mH Unical power supply Terminals 18, 19 V_t, U_o = 7.5 V I_t, I_o = 140.2 mA P_t, P_o = 263 mW C_a, C_o = 11.1 µF L_a, L_o = 1.5 mH	Hazardous Location Class I, DIV 1 or Zone 0, IIC Class I, Division 1, Groups A, B, C & D Class II, Division 1, Groups E, F & G Class III Class I, Zone 0, AEx ia, Group IIC FIU 3400X-140-2 Terminals 1, 2, 3, 4, 5 do not connect Memosens/InduCon II Terminals 6, 7, 8, 9, 10 Memosens/InduCon I Terminals 11, 12, 13, 14, 15 V_t, U_o = 5 V I_t, I_o = 123 mA P_t, P_o = 154 mW C_a, C_o = 97,4 µF L_a, L_o = 2 mH Unical Interface RS 485 Terminals 16, 17, 18 V_t, U_o = 5.0 V I_t, I_o = 118 mA P_t, P_o = 148 mW C_a, C_o = 100 µF L_a, L_o = 2 mH Unical power supply Terminals 18, 19 V_t, U_o = 7.5 V I_t, I_o = 115 mA P_t, P_o = 216 mW C_a, C_o = 10,9 µF L_a, L_o = 2 mH

Unical Interface RS 485 and Unical power supply are for connecting to Unical-9000X FM ID 3024483

The supply and interface circuits Memosens I, Memosens II and Unical are galvanically connected.
They are infallibly galvanically separated from the power supply and the KBus up to a peak voltage of 60 V.



Power Supply/KBus
only to connect to
Protos Module BASE 3400X */***
or to
other Protos measuring &
ouput modules

Installation Notes

1. The Intrinsic Safety Entity concept allows the interconnection of FM Approved Intrinsically safe devices with entity parameters not specifically examined in combination as a systems when: U_o or V_{oc} or $V_t \leq V_{max}$, I_o or I_{sc} or $I_t \leq I_{max}$. $P_o \leq P_i$. C_a or $C_o \geq \sum C_i + \sum C_{cable}$.
   For Inductance use either L_a or $L_o \geq \sum L_i + \sum L_{Cable}$ or $L_a/R_a \leq (L_i/R_a$ or $L_o/R_o)$ and $L_i/R_i \leq (L_a/R_a$ or $L_o/R_o)$
2. Installation should be in accordance with ANSI/ISA RP12.06.01 (except chapter 5 for FISCO installations), "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code® (ANSI/NFPA 70) Sections 504 and 505.
3. No revision to drawing without prior FM Approvals authorisation.
4. The Intrinsically Safe Equipment connecting to 1 to 19 must be FM Approved or be a Simple Apparatus.
5. Simple Apparatus is defined as a device that does not generates more than 1.5 V, 0.1 A or 25 mW.

Verteiler: FUL (Zx)	Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m	Oberfläche	Maßstab Halbzeug	page 12	
		Datum	Name	Benennung	
	Bearb.	22.09.06	dam	control drawing FM Protos Type FIU 3400X-14x	
	Gepr (KON)				
	Freigabe(FGL)	27.11.06			
	Schutzvermerk nach ISO 16016 beachten			Zeichnungsnummer	
1 140-2 26.11.09 dam	Knick > Elektronische Meßgeräte GmbH & Co. KG			201.003-170	
Nr. Änderung Datum Bearbeiter FGL KON				Ungültig ab:	Ersetzt durch:

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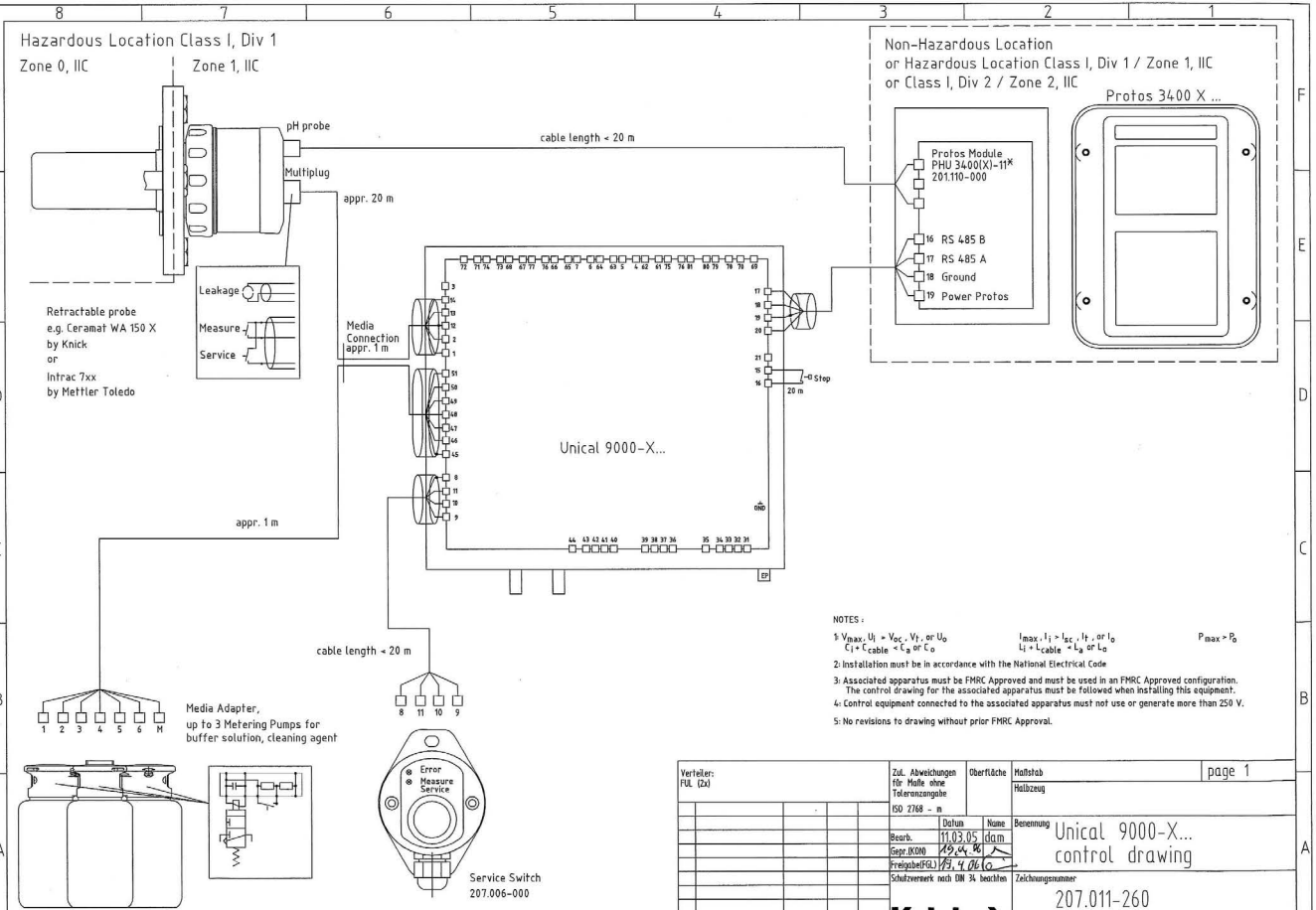

NOTES :

1: $V_{max}, U_i > V_{oc}, V_t, \text{ or } U_o$ $\quad I_{max}, I_i > I_{sc}, I_t, \text{ or } I_o$ $\quad P_{max} > P_o$
$C_i + C_{cable} < C_a \text{ or } C_o \quad L_i + L_{cable} < L_a \text{ or } L_o$

2: Installation must be in accordance with the National Electrical Code

3: Associated apparatus must be FMRC Approved and must be used in an FMRC Approved configuration. The control drawing for the associated apparatus must be followed when installing this equipment.

4: Control equipment connected to the associated apparatus must not use or generate more than 250 V.

5: No revisions to drawing without prior FMRC Approval.

Verteiler: FUL (2x)	Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m	Oberfläche	Maßstab	page 1
			Halbzeug	
		Datum / Name	Benennung	Unical 9000-X... control drawing
	Bearb.	11.03.05 dam		
	Gepr.(KON)	19.4.06		
	Freigabe(FGL)	19.4.06		
	Schutzvermerk nach DIN 34 beachten		Zeichnungsnummer	207.011-260
Nr. / AE / Datum / Bearbeiter FGL KON	Knick Elektronische Messgeräte GmbH & Co. KG		Ungültig ab:	Ersetzt durch:

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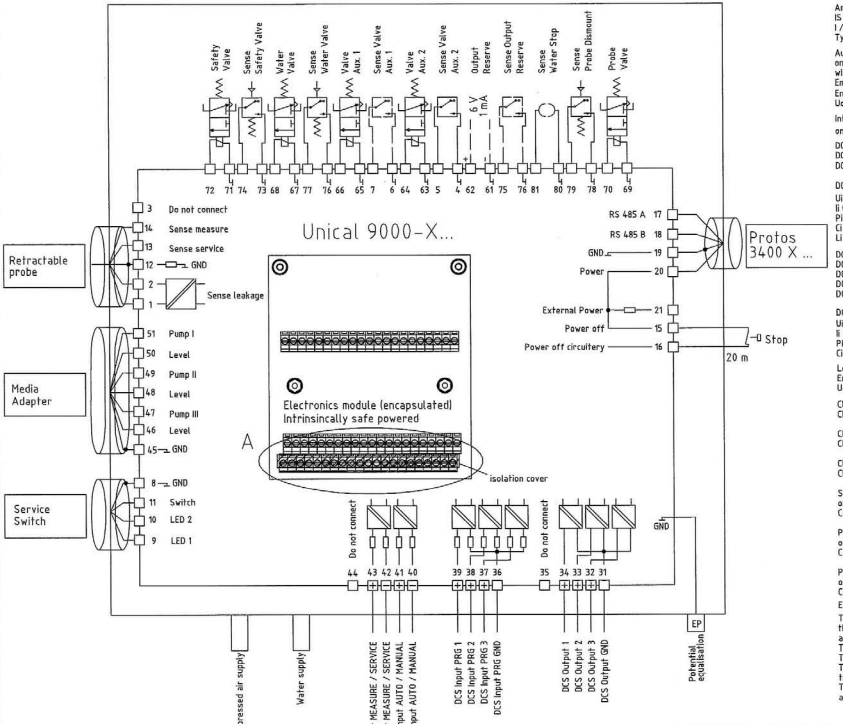

Ambient temperature range +2°C to 50°C
IS / I / 1 / ABCDEFG / T4 Ta = 50°C; Entity
I / 0 / AEx ia IIC T4 Ta= 50°C; Entity
Type 4X/IP65

Auxiliary power supply, Terminals KL19, KL20
only for connection to the certified Protos Module Type PHU 3400 X - 11K with
Emergency Shutdown, Terminals KL15, KL16
Entity Parameters
Uo, Voc = 7.5 V; Io, Isc = 146 mA; Po = 309 mW; Co = 1.68 µF; Lo = 1 mH

Interface RS485 Terminals KL17, KL18, KL19
only connection to the certified Protos Module Type PHU 3400 X - 11K

DCS Output 1, Terminals KL31, KL34
DCS Output 2, Terminals KL31, KL33
DCS Output 3, Terminals KL31, KL32

DCS outputs are considered connected together
Ui (Vmax, Vt) = 30 V
Ii (Imax, It) = 100 mA
Pi = 600 mW
Ci = 36 nF
Li = 0

DCS Input PRG1, Terminals KL36, KL39
DCS Input PRG2, Terminals KL36, KL38
DCS Input PRG3, Terminals KL36, KL37
DCS Input A/M, Terminals KL40, KL41
DCS Input M/S, Terminals KL42, KL43

DCS inputs are considered connected together
Ui (Vmax, Vt) = 30 V
Ii (Imax, It) = 100 mA
Pi = 600 mW
Ci and Li = 0

Leakage circuit Terminals KL1, KL2
Entity Parameters
Uo (Voc) = 5 V, Io (Isc) = 8 mA , Po = 10 mW

Class I, Zone 0, Group IIC Co (Ca) = 100 µF Lo (La) = 500 mH
Class I, Div 1, Groups A & B

Class I, Zone 0, Group IIB Co (Ca) = 1000 µF Lo (La) = 1 H
Class I, Div 1, Group C

Class I, Zone 0, Group IIA Co (Ca) = 1000 µF Lo (La) = 1 H
Class I, Div 1, Group D

Service Switch circuit Terminals KL8, KL9, KL10, KL11
only for connection to the Service Switch, which is part of Unical 9000-X...
Cable length < 20 m.

Pump circuits, Terminals KL45, KL46, KL47, KL48, KL49, KL50, KL51
only for connection to the Media Connection / Media Adapter, which are part of Unical 9000-X...
Cable length < 20 m.

Probe circuit, Terminals KL12, KL13, KL14
only for connection to the Media Connection which is part of Unical 9000-X...
Cable length < 20 m.

EP potential equalization
The auxiliary external power supply circuit, the auxiliary power supply, the emergency shutdown circuit, the interface RS485, the service switch circuit, the pump circuits and the probe circuit are connected to each other and to the potential equalization EP.
The DCS inputs PRG1, PRG2 and PRG3 are connected with each other.
The DCS outputs 1, 2 and 3 are connected with each other.
The DCS inputs PRG1, PRG2, PRG3 are functionally galvanically separated from the DCS input A/M and from the DCS input M/S, but are connected from an intrinsic safety point of view.
The DCS outputs and the DCS inputs and the leakage circuit are infallibly galvanically separated from each other and from all other circuits up to a peak voltage of 60 V.

Verteiler: FUL (Zx)

Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m

Oberfläche

Maßstab Halbzeug

page 2

	Datum	Name
Bearb.	11.03.05	dam
Gepr.(KON)	13.04.06	
Freigabe(FGL)	19.4.06	

Schutzvermerk nach DIN 34 beachten

Benennung: Unical 9000-X... control drawing

Zeichnungsnummer: 207.011-260

Knick Elektronische Messgeräte GmbH & Co. KG

Ungültig ab: Ersetzt durch:

Nr. | AE | Datum | Bearbeiter FGL KON

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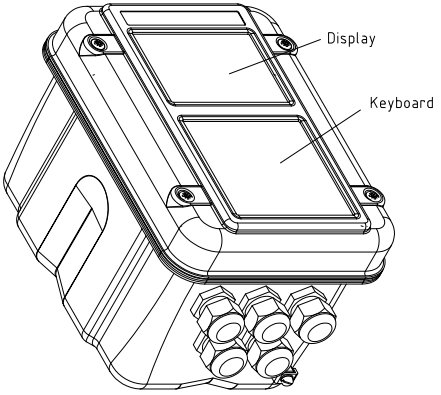
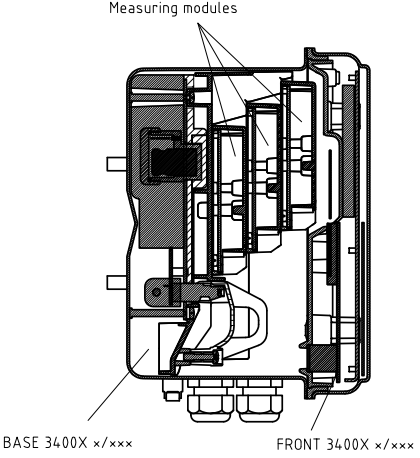
Protos modular measuring system for liquid analysis Type 3400X x/xxx

Hazardous Location
Class I, Division 2, Groups A, B, C & D T4
Ex me ib IIC T4; Entity
Enclosure Type 4X, Tamb = - 20 °C to + 50 °C

Measuring modules
Class I, Division 2, Groups A, B, C & D T4
Ex ib [ia] IIC T4; Entity





Verteiler: FUL (2x)					Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m	Oberfläche	Maßstab	page 1
							Halbzeug	
						Datum / Name	Benennung	control drawing CSA Protos Type 3400X x/xxx
						Bearb. 28.08.03 dam		
						Gepr.(KON)		
						Freigabe(FGL)		
						Schutzvermerk nach ISO 16016 beachten	Zeichnungsnummer	201.003-180
1	CSA Texte	29.06.05	dam		Knick			
Nr.	AE	Datum	Bearbeiter	FGL KON	Elektronische Meßgeräte GmbH & Co. KG		Ungültig ab:	Ersetzt durch:

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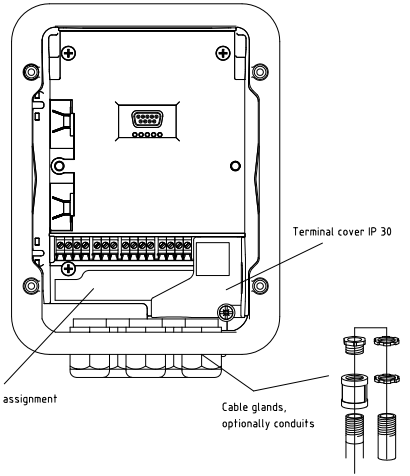
Protos modular measuring system for liquid analysis Type 3400X ×/×××

Protos Module Type BASE 3400X ×/×××
Hazardous Location
Class I, Division 2, Groups A, B, C & D T4
Ex me ib IIC T4; Entity
Enclosure Type 4X, Tamb = - 20 °C to + 50 °C

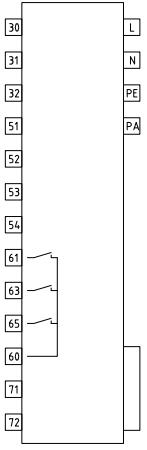


Entity Parameters:
Class I, Division 1, Groups A, B, C & D

Terminals 30/31 and 30/32
V_{max}, U_i = 30 V
I_{max}, I_i = any value
C_i, L_i = negligibly small

Terminals 51/52 and 53/54
V_t, V_i = 17 V
I_t, I_i = 84 mA
P_t, P_i = 357 mW
C_a, C_o = 375 nF
L_a, L_o = 5 mH
C_i = 132 nF
L_i = negligibly small

Terminals 60/61, 60/63, 60/65 and 71/72
V_{max} = 30 V
I_{max} = 500 mA



100 to 230 V AC - 10 %, + 15 %
approx. 15 VA, 48 to 62 Hz
24 V AC/DC
AC: -15 % + 10 % approx. 15 VA, 48 to 62 Hz
DC: -15 % + 20 % approx. 8 W

KBus
to connect measuring & output modules

Installation must be in accordance with Canadian Electric Code (Can3-M421) in Canada

The intrinsically safe equipment connecting to 30, 31, 32, 51, 52, 53, 54, 60, 61, 63, 65, 71, 72 KBus must be CSA approved or be a simple apparatus (a device which will neither generate nor store more than 1.2 V, 0.1 A, 25 mW or 20 mJ).

Verteiler: FUL (2x)				Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m	Oberfläche	Maßstab	page 2
						Halbzeug	
					Datum / Name	Benennung	control drawing CSA Protos Type BASE 3400X ×/×××
				Bearb.	28.08.03 dam		
				Gepr. (KON)			
				Freigabe (FGL)			
				Schutzvermerk nach ISO 16016 beachten		Zeichnungsnummer	201.003-180
1	CSA Texte	29.06.05	dam	Knick Elektronische Meßgeräte GmbH & Co. KG		Ungültig ab:	Ersetzt durch:
Nr.	AE	Datum	Bearbeiter	FGL KON			

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Protos modular measuring system for liquid analysis Type 3400X ×/×××

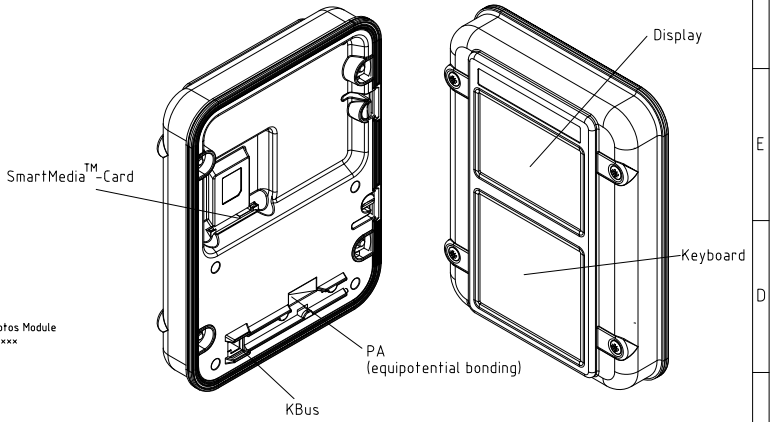
Protos Module Type FRONT 3400X ×-01×

Hazardous Location

Class I, Division 2, Groups A, B, C & D T4

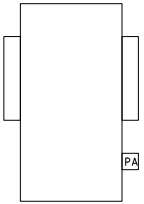
Ex ib IIC T4

Enclosure Type 4X, Tamb = - 20 °C to + 50 °C



Slot for SmartMedia™-Card
only for SmartMedia™-Card
Type ZU 0543 by Knick

Protos Module Type FRONT 3400X ×-01×
may be opened temporarily during operation
for inserting/replacing the SmartMedia™-Card



KBus/PA
for connection to Protos Module
Type BASE 3400X ×/×××

Verteiler: FUL (2x)				Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m	Oberfläche	Maßstab	page 3
						Halbzeug	
					Datum	Name	Benennung: control drawing CSA Protos Type FRONT 3400X ×/×××
				Bearb.	28.08.03	dam	
				Gepr.(KON)			
				Freigabe(FGL)			
				Schutzvermerk nach ISO 16016 beachten			Zeichnungsnummer: 201.003-180
1	CSA Texte	29.06.05	dam	Knick Elektronische Meßgeräte GmbH & Co. KG			
Nr.	AE	Datum	Bearbeiter FGL KON			Ungültig ab:	Ersetzt durch:

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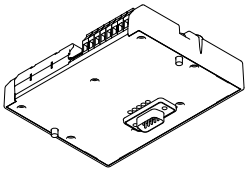
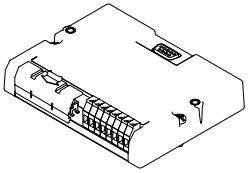
Protos modular measuring system for liquid analysis Type 3400X ×/×××

Protos Module Type PH 3400X-03×

Hazardous Location
Class I, Division 2, Groups A, B, C & D T4
Ex ib [ia] IIC T4; Entity
Tamb = - 20 °C to + 50 °C



Bottom side



Top side

Entity Parameters:
Class I, Division 1, Groups A, B, C & D
Class I, Zone 0, Ex ia, Group IIC

PH 3400X-032
PH 3400X-033

Terminals 2, 8, 12, 13, 16
V_t, U_o = 10 V
I_t, I_o = 20 mA
P_t, P_o = 25 mW
C_a, C_o = 3 µF
L_a, L_o = 100 mH
C_i = negligibly small
L_i = negligibly small

Terminals 14, 15
V_t, U_o = 10 V
I_t, I_o = 14 mA
P_t, P_o = 35 mW
C_a, C_o =2.76 µF
L_a, L_o = 200 mH
C_i =240 nF
L_i = negligibly small

Terminals 17, 18, 19
V_t, U_o = 10 V
I_t, I_o = 10 mA
P_t, P_o = 12 mW
C_a, C_o =2.64 µF
L_a, L_o = 350 mH
C_i =360 nF
L_i = negligibly small

Terminals 2, 8, 12, 13, 14, 15, 16, 17, 18, 19
V_t, U_o = 10 V
I_t, I_o = 44 mA
P_t, P_o = 55 mW
C_a, C_o =2.345 µF
L_a, L_o = 20 mH
C_i = 655 nF
L_i = negligibly small

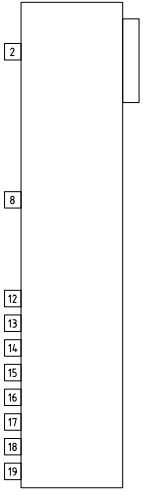
PH 3400X-035
PH 3400X-036

Terminals 2, 8, 12, 13, 14, 15
V_t, U_o = 12 V
I_t, I_o = 4.3 mA
P_t, P_o = 7.8 mW
C_a, C_o = 1.4 µF
L_a, L_o = 1 H
C_i = 67 nF
L_i = negligibly small

Terminals 18, 19
V_t, U_o = 7.2 V
I_t, I_o = 6.6 mA
P_t, P_o = 11.9 mW
C_a, C_o = 10 µF
L_a, L_o = 650 mH
C_i = 24 nF
L_i = negligibly small

Terminals 2, 8, 12, 13, 14, 15, 18, 19
V_t, U_o = 12 V
I_t, I_o = 10.9 mA
P_t, P_o = 19.7 mW
C_a, C_o = 1.4 µF
L_a, L_o = 260 mH
C_i = 91 nF
L_i = negligibly small

Terminals 2, 8, 12, 13, 14, 15, 16, 17, 18, 19
V_t, U_o = 12 V
I_t, I_o = 26.1 mA
P_t, P_o = 47 mW
C_a, C_o = 1.4 µF
L_a, L_o = 60 mH
C_i = 91 nF
L_i = negligibly small



KBus
only to connect to
Protos Module BASE 3400X ×/×××
or to
other Protos measuring &
ouput modules

Installation must be in accordance with Canadian Electric Code in Canada

The intrinsically safe equipment connecting to 2, 8, 12, 13, 14, 15, 16, 17, 18, 19, KBus must be CSA approved or be a simple apparatus (a device which will neither generate nor store more than 1.2 V, 0.1 A, 25 mW or 20 mJ).

Nr.	AE	Datum	Bearbeiter
2	CSA Texte	29.06.05	dam
1	PH 035/036	11.04.05	dam

Verteiler: FUL (2x)

Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m

Oberfläche

Maßstab: page 4

Halbzeug

	Datum	Name
Bearb.	28.08.03	dam
Gepr.(KON)		
Freigabe(FGL)		

Schutzvermerk nach ISO 16016 beachten

Knick Elektronische Meßgeräte GmbH & Co. KG

Benennung: control drawing CSA
Protos Type PH 3400X-03×

Zeichnungsnummer: 201.003-180

Ungültig ab: Ersetzt durch:

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Protos modular measuring system Type 3400X ×/×××

for liquid analysis

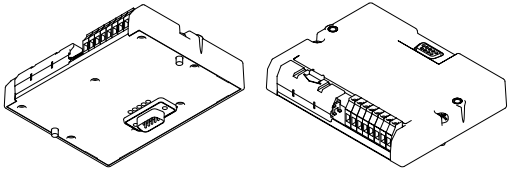
Protos Module Type COND 3400X-04×

Hazardous Location

Class I, Division 2, Groups A, B, C & D T4

Ex ib [ia] IIC T4; Entity

Tamb = - 20 °C to + 50 °C



Bottom side

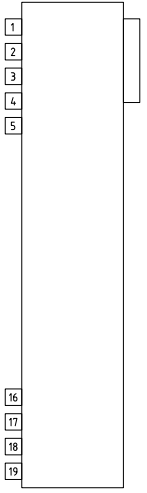
Top side

Entity Parameters:
Class I, Division 1, Groups A, B, C & D
Class I, Zone 0, AEx ia, Group IIC

Terminals 1, 2, 3, 4, 5
V_t, U_o = 10 V
I_t, I_o = 112 mA
P_t, P_o = 139 mW
C_a, C_o = 3 µF
L_a, L_o = 4 mH
C_i = negligibly small
L_i = negligibly small

Terminals 16, 17, 18, 19
V_t, U_o = 10 V
I_t, I_o = 10 mA
P_t, P_o = 12 mW
C_a, C_o = 3 µF
L_a, L_o = 300 mH
C_i = negligibly small
L_i = negligibly small

Terminals 1, 2, 3, 4, 5, 16, 17, 18, 19
V_t, U_o = 10 V
I_t, I_o = 122 mA
P_t, P_o = 153 mW
C_a, C_o = 3 µF
L_a, L_o = 2 mH
C_i = negligibly small
L_i = negligibly small



KBus
only to connect to
Protos Module BASE 3400X ×/××× or to
other Protos measuring & ouput modules

Cond sensor series InPro 70xx-VP

- InPro7000-VP
- InPro7005-VP
- InPro7001/120-VP
- InPro7001/225-VP
- InPro7002/1.5"TC-VP
- InPro7002/2"TC-VP

Cond sensor series InPro 71xx-VP

- InPro7108-VP/CPVC
- InPro7108-VP/PEEK
- InPro7108-VP/PEEK/HA-C22
- InPro7108-25/40-VP
- InPro7108-25/40/HA-C22-VP
- InPro7108-26/65-VP
- InPro7108-25/65/HA-C22-VP
- InPro7108/1.5"TC-VP
- InPro7108/2"TC-VP

Cond sensor series

- SE 604
- CLS 21-×××
- ZU 0071
- 92 ××-×××
- SE 600
- SE 602
- SE 603

cable max 10 m

Installation must be in accordance with Canadian Electric Code (Can3-M421) in Canada

The intrinsically safe equipment connecting to 1, 2, 3, 4, 5, 16, 17, 18, 19, KBus must be CSA approved
or be a simple apparatus (a device which will neither generate nor store more than 1.2 V, 0.1 A, 25 mW or 20 mJ).

Verteiler: FUL (2x)				Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m	Oberfläche	Maßstab	page 5
						Halbzeug	
					Datum	Name	Benennung: control drawing CSA Protos Type COND 3400X-04×
				Bearb.	28.08.03	dam	
				Gepr.(KON)			
				Freigabe(FGL)			
				Schutzvermerk nach ISO 16016 beachten			Zeichnungsnummer: 201.003-180
1	CSA Texte	29.06.05	dam	Knick Elektronische Meßgeräte GmbH & Co. KG			
Nr.	AE	Datum	Bearbeiter	FGL KON		Ungültig ab:	Ersetzt durch:

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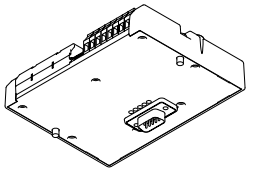
Protos modular measuring system for liquid analysis Type 3400X ×/×××

Protos Module Type OXY 3400X-06×

Hazardous Location
Class I, Division 2, Groups A, B, C & D T4
Ex ib [ia] IIC T4; Entity
Tamb = - 20 °C to + 50 °C



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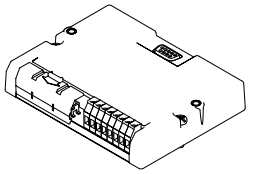

Top side

Entity Parameters:
Class I, Division 1, Groups A, B, C & D
Class I, Zone 0, Ex ia, Group IIC

OXY 3400X-062
OXY 3400X-063

Terminals 2, 8, 13, 14, 15, 16
V_t, U_o = 10 V
I_t, I_o = 10 mA
P_t, P_o = 13 mW
C_a, C_o = 3 µF
L_a, L_o = 300 mH
C_i = negligibly small
L_i = negligibly small

Terminals 17, 18
V_t, U_o = 10 V
I_t, I_o = 1 mA
P_t, P_o = 2 mW
C_a, C_o = 3 µF
L_a, L_o = 1 H
C_i = negligibly small
L_i = negligibly small

Terminals 2, 8, 13, 14, 15, 16, 17, 18
V_t, U_o = 10 V
I_t, I_o = 11 mA
P_t, P_o = 14 mW
C_a, C_o = 3 µF
L_a, L_o = 300 mH
C_i = negligibly small
L_i = negligibly small

OXY 3400X-065
OXY 3400X-066

Terminals 2, 8, 12, 13
V_t, U_o = 12 V
I_t, I_o = 10 mA
P_t, P_o = 17 mW
C_a, C_o = 1.4 µF
L_a, L_o = 300 mH
C_i = negligibly small
L_i = negligibly small

Terminals 16, 17
V_t, U_o = 5 V
I_t, I_o = 1 mA
P_t, P_o = 1.5 mW
C_a, C_o = 40 µF
L_a, L_o = 1 H
C_i = 120 nF
L_i = negligibly small

Terminals 2, 8, 12, 13, 14, 15, 16, 17
V_t, U_o = 12 V
I_t, I_o = 16 mA
P_t, P_o = 27 mW
C_a, C_o = 1.4 µF
L_a, L_o = 160mH
C_i = 121 nF
L_i = negligibly small

Terminals 18, 19
I_i, I_{max} = 125 mA
P_i = 750mW
C_i = 1.2 nF
L_i = negligibly small

OXY 3400X-067

Terminals 2, 8, 12, 13, 15
V_t, U_o = 10 V
I_t, I_o = 12 mA
P_t, P_o = 16 mW
C_a, C_o = 1.5 µF
L_a, L_o = 1 mH
C_i = negligibly small
L_i = negligibly small

Terminals 13, 14
V_t, U_o = 5 V
I_t, I_o = 1 mA
P_t, P_o = 1.5 mW
C_a, C_o = 4.4 µF
L_a, L_o = 5 H
C_i = 120 nF
L_i = negligibly small

Terminals 2, 8, 12, 13, 14, 15
V_t, U_o = 10 V
I_t, I_o = 13 mA
P_t, P_o = 17 mW
C_a, C_o = 1.4 µF
L_a, L_o = 1 mH
C_i = 121 nF
L_i = negligibly small

Terminals 2, 8, 12, 13, 14, 15, 16, 17
V_t, U_o = 10 V
I_t, I_o = 33mA
P_t, P_o = 42mW
C_a, C_o = 1.4 µF
L_a, L_o = 1 mH
C_i = 121 nF
L_i = negligibly small

Terminals 18, 19
U_i, U_{max} = 30 V
I_i, I_{max} = 125 mA
P_i = 1500mW
C_i = 12 nF
L_i = negligibly small

KBus
only to connect to
Protos Module BASE 3400X ×/×××
or to
other Protos measuring &
ouput modules

Installation must be in accordance with Canadian Electric Code in Canada

The intrinsically safe equipment connecting to 2, 8, 12, 13, 14, 15, 16, 17, 18, 19, KBus must be CSA approved
or be a simple apparatus (a device which will neither generate nor store more than 1.2 V, 0.1 A, 25 mW or 20 mJ).

Verteiler:
FUL (2x)

Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m

Oberfläche

Maßstab page 6

Halbzeug

	Datum	Name
Bearb.	28.08.03	dam
Gepr.(KON)		
Freigabe(FGL)		

Schutzvermerk nach ISO 16016 beachten

Benennung
control drawing CSA
Protos Type OXY 3400X-06×

Zeichnungsnummer
201.003-180

Nr.	AE	Datum	Bearbeiter
3	OXY 067	22.09.06	dam
2	CSA Texte	29.06.05	dam
1	OXY 065/066	12.04.05	dam

FGL KON

Knick Elektronische Meßgeräte GmbH & Co. KG

Ungültig ab:

Ersetzt durch:

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Protos modular measuring system for liquid analysis Type 3400X ×/×××

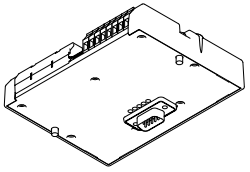
Protos Module Type PHU 3400X-11×

Hazardous Location

Class I, Division 2, Groups A, B, C & D T4

Ex ib [ia] IIC T4; Entity

Tamb = - 20 °C to + 50 °C



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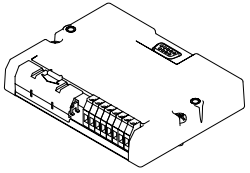


Top side

Entity Parameters:
Class I, Division 1, Groups A, B, C & D
Class I, Zone 0, AEx ia, Group IIC

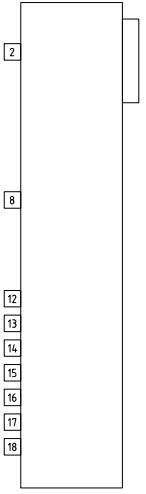
Terminals 2, 8, 12
V_t, U_o = 10 V
I_t, I_o = 20 mA
P_t, P_o = 25 mW
C_a, C_o = 3 µF
L_a, L_o = 100 mH
C_i = negligibly small
L_i = negligibly small

Terminals 13, 14, 15
V_t, U_o = 5 V
I_t, I_o = 10 mA
P_t, P_o = 12 mW
C_a, C_o = 100 µF
L_a, L_o = 300 mH
C_i = negligibly small
L_i = negligibly small

Terminals 2, 8, 12, 13, 14, 15
V_t, U_o = 10 V
I_t, I_o = 29 mA
P_t, P_o = 47 mW
C_a, C_o = 3 µF
L_a, L_o = 40 mH
C_i = negligibly small
L_i = negligibly small

Terminals 18, 19
V_t, U_o = 7.5 V
I_t, I_o = 140 mA
P_t, P_o = 297 mW
C_a, C_o = 11.1 µF
L_a, L_o = 2 mH
C_i = negligibly small
L_i = negligibly small

Terminals 16, 17, 18
V_t, U_o = 5 V
I_t, I_o = 257 mA
P_t, P_o = 322 mW
C_a, C_o = 100 µF
L_a, L_o = 0,5 mH
C_i = negligibly small
L_i = negligibly small



KBus
only to connect to
Protos Module BASE 3400X ×/××× or to
other Protos measuring & ouput modules

pH sensor series InPro 3xxx
- InPro3200/×××
- InPro3100/×××
- SE 532

pH sensor series InPro 4xxx
- InPro4250/×××
- SE 533
- InPro 4010/×××
- SE 531

pH sensor series InPro 2xxx
- SE 536

pH sensor series Polyclave ××××
- SE 550

pH sensor series HA 4××-×××-
- SE 534
- SE 537

pH sensor group X 9080
- SE 538

ORP sensor
- Pt 48××-×××-
- SE 535

RTD sensor
- W 2161
- SE 803

Cable max 10 m

Installation must be in accordance with Canadian Electric Code (Can3-M421) in Canada

The intrinsically safe equipment connecting to 2, 8, 12, 13, 14, 15, 16, 17, 18, 19, KBus must be CSA approved or be a simple apparatus (a device which will neither generate nor store more than 1.2 V, 0.1 A, 25 mW or 20 mJ).

Verteiler: FUL (2x)				Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m	Oberfläche	Maßstab	page 7
						Halbzeug	
					Datum / Name	Benennung	control drawing CSA Protos Type PHU 3400X-11×
				Bearb.	28.08.03 dam		
				Gepr.(KON)			
				Freigabe(FGL)			
				Schutzvermerk nach ISO 16016 beachten		Zeichnungsnummer	201.003-180
1	CSA Texte	29.06.05	dam	Knick Elektronische Meßgeräte GmbH & Co. KG		Ungültig ab:	Ersetzt durch:
Nr.	AE	Datum	Bearbeiter	FGL KON			

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Protos modular measuring system for liquid analysis Type 3400X ×/×××

Protos Module Type OUT 3400X-07×

Protos Module Type PID 3400X-12×

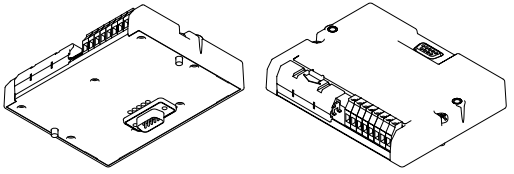
Hazardous Location

Class I, Division 2, Groups A, B, C & D T4

Class II, Division 2, Groups F & G T4

Ex ib IIC T4; Entity

Tamb = - 20 °C to + 50 °C



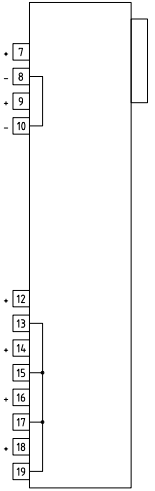
Bottom side

Top side

Entity Parameters:
Class I, Division 1, Groups A, B, C & D
Class II, Division 1, Groups E, F & G
Class I, Zone 1, Ex ib, Group IIC

Terminals 7, 8, 9, 10
U_i , V_{max} = 30 V
I_i , I_{max} = 100 mA
P_i = 800 mW

Terminals 12, 13, 14, 15, 16, 17, 18, 19
U_i , V_{max} = 30 V
I_i , I_{max} = 100 mA
P_i = 800 mW



KBus
only to connect to
Protos Module BASE 3400X ×/××× or to
other Protos measuring & ouput modules

The switching circuits (terminals 12, 13, 14, 15, 16, 17, 18, 19) and the output circuits (terminals 7, 8, 9, 10) are safely galvanically isolated from each other and from the supply and the KBus, respectively, up to a crest value of the nominal voltage of 60V.
The two output circuits are galvanically connected.
The four switching circuits are galvanically connected.

Installation must be in accordance with Canadian Electric Code (Can3-M421) in Canada

The intrinsically safe equipment connecting to 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, KBus must be CSA approved or be a simple apparatus (a device which will neither generate nor store more than 1.2 V, 0.1 A, 25 mW or 20 mJ).

Verteiler: FUL (2x)				Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m	Oberfläche	Maßstab	page 8
						Halbzeug	
					Datum / Name	Benennung	control drawing CSA Protos Type OUT 3400X-07× Protos Type PID 3400X-12×
				Bearb.	07.01.04 dam		
				Gepr.(KON)			
				Freigabe(FGL)			
				Schutzvermerk nach ISO 16016 beachten		Zeichnungsnummer	201.003-180
1	CSA Texte	29.06.05	dam	Knick Elektronische Meßgeräte GmbH & Co. KG		Ungültig ab:	Ersetzt durch:
Nr.	AE	Datum	Bearbeiter	FGL KON			

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Protos modular measuring system for liquid analysis Type 3400X ×/×××

Protos Module Type CONDI 3400X-05×

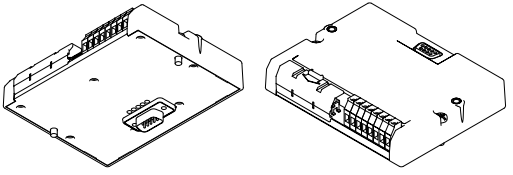
Hazardous Location

Class I, Division 2, Groups A, B, C & D T4

Class II, Division 2, Groups F & G T4

Ex ib [ia] IIC T4; Entity

Tamb = - 20 °C to + 50 °C



Unterseite
Bottom side

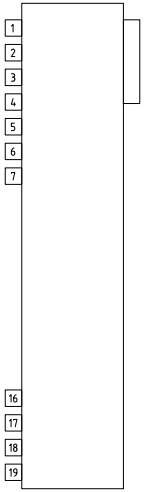
Oberseite
Top side

Entity Parameters:
Class I, Division 1, Groups A, B, C & D
Class II, Division 1, Groups E, F & G
Class I, Zone 0, Ex ia, Group IIC

Terminals 1, 2, 3, 4, 5, 6, 7
V_t, U_o = 7 V
I_t, I_o = 45 mA
P_t, P_o = 26 mW
C_a, C_o = 1.4 µF
L_a, L_o = 12 mH

Terminals 16, 17, 18, 19
V_t, U_o = 5 V
I_t, I_o = 9.1 mA
P_t, P_o = 12 mW
C_a, C_o = 3.26 µF
L_a, L_o = 16 mH

Terminals 1, 2, 3, 4, 5, 6, 7, 16, 17, 18, 19
V_t, U_o = 7 V
I_t, I_o = 54.1 mA
P_t, P_o = 38 mW
C_a, C_o = 1.05 µF
L_a, L_o = 10 mH



K-Bus
only to connect to
Protos Module Base 3400X ×/××× or to other
Protos measuring & ouput modules

Installation must be in accordance with Canadian Electric Code (Can3-M421) in Canada

The intrinsically safe equipment connecting to 1, 2, 3, 4, 5, 6, 7, 16, 17, 18, 19, KBus must be CSA approved or be a simple apparatus (a device which will neither generate nor store more than 1.2 V, 0.1 A, 25 mW or 20 mJ).

Verteiler: FUL (2x)				Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m	Oberfläche	Maßstab	page 9
						Halbzeug	
					Datum	Name	Benennung: control drawing Protos Protos Type CONDI 3400X-05×
				Bearb.	08.01.04	dam	
				Gepr.(KON)			
				Freigabe(FGL)			
				Schutzvermerk nach ISO 16016 beachten			Zeichnungsnummer: 201.003-180
1	CSA Texte	29.06.05	dam	Knick			
Nr.	AE	Datum	Bearbeiter	FGL KON	Elektronische Meßgeräte GmbH & Co. KG	Ungültig ab:	Ersetzt durch:

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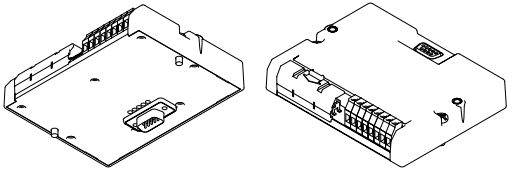
Protos modular measuring system Type 3400X ×/×××
for liquid analysis

Protos Module Type COMPA 3400X-08× (x = 1, 2, 3 or 4)
Protos Module Type COMFF 3400X-08× (x = 5, 6, 7, 8 or 9)

Hazardous Location
Class I, Division 2, Groups A, B, C & D T4
Ex ib [ia] IIC T4; Entity
Tamb = - 20 °C to + 50 °C



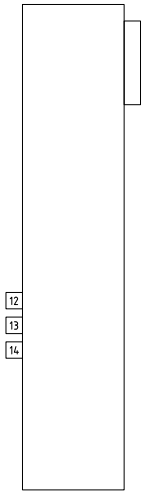
Bottom side

Top side

Entity Parameters:
Class I, Division 1, Groups A, B, C & D
Class I, Zone 0, Ex ia, Group IIC

Terminals 12, 13, 14
U_i = 24 V
I_i = 250 mA
P_i = 1,5 W
C_i = 5 nF
L_i = 10 µH

or to a fieldbus PROFIBUS-PA (MPB-IS)
or Foundation Fieldbus (FF-H1)
in accordance with the FISCO model
U_i = 17,5 V
I_i = 380 mA
P_i = 5,32 W
C_i = 5 nF
L_i = 10 µH



KBus
only to connect to
Protos Module BASE 3400X ×/××× or to
other Protos measuring & ouput modules

Installation must be in accordance with Canadian Electric Code (Can3-M421) in Canada

The intrinsically safe equipment connecting to 12, 13, 14, KBus must be CSA approved

Verteiler: FUL (2x)				Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m	Oberfläche	Maßstab	page 10
						Halbzeug	
					Datum / Name	Benennung	control drawing CSA Protos Type COMPA 3400X-081 Protos Type COMFF 3400X-085
				Bearb.	15.01.04 dam		
				Gepr.(KON)			
				Freigabe(FGL)			
				Schutzvermerk nach ISO 16016 beachten		Zeichnungsnummer	201.003-180
1	CSA Texte	29.06.05	dam	Knick Elektronische Meßgeräte GmbH & Co. KG		Ungültig ab:	Ersetzt durch:
Nr.	AE	Datum	Bearbeiter	FGL KON			

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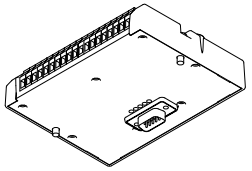
Protos modular measuring system Type 3400X ×/×××
for liquid analysis

Protos Module Type FIU 3400X-14×

Hazardous Location
Class I, Division 2, Groups A, B, C & D T4
Ex ib [ia] IIC T4; Entity
Tamb = - 20 °C to + 50 °C



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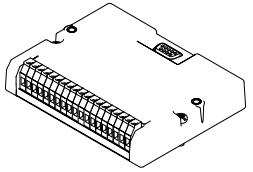

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Hazardous Location
Class I, DIV 1 or Zone 0, IIC

Class I, Division 1, Groups A, B, C & D
Class II, Division 1, Groups E, F & G
Class III
Class I, Zone 0, AEx ia, Group IIC

FIU 3400X-140

Terminals 1, 2, 3, 4, 5
do not connect

InduCon II
Terminals 6, 7, 8, 9, 10
InduCon I
Terminals 11, 12, 13, 14, 15
V_t, U_o = 5.1 V
I_t, I_o = 130 mA
P_t, P_o = 166 mW
C_a, C_o = 88 µF
L_a, L_o = 2 mH

Unical Interface RS 485
Terminals 16, 17, 18
V_t, U_o = 5.0 V
I_t, I_o = 119.7 mA
P_t, P_o = 153 mW
C_a, C_o = 100 µF
L_a, L_o = 2 mH

Unical power supply
Terminals 18, 19
V_t, U_o = 7.5 V
I_t, I_o = 40.2 mA
P_t, P_o = 263 mW
C_a, C_o = 11.1 µF
L_a, L_o = 1.5 mH

Hazardous Location
Class I, DIV 1 or Zone 0, IIC

Class I, Division 1, Groups A, B, C & D
Class II, Division 1, Groups E, F & G
Class III
Class I, Zone 0, AEx ia, Group IIC

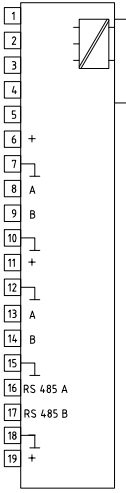
FIU 3400X-140-2

Terminals 1, 2, 3, 4, 5
do not connect

Memosens/InduCon II
Terminals 6, 7, 8, 9, 10
Memosens/InduCon I
Terminals 11, 12, 13, 14, 15
V_t, U_o = 5 V
I_t, I_o = 123 mA
P_t, P_o = 154 mW
C_a, C_o = 97,4 µF
L_a, L_o = 2 mH

Unical Interface RS 485
Terminals 16, 17, 18
V_t, U_o = 5.0 V
I_t, I_o = 118 mA
P_t, P_o = 148 mW
C_a, C_o = 100 µF
L_a, L_o = 2 mH

Unical power supply
Terminals 18, 19
V_t, U_o = 7.5 V
I_t, I_o = 115 mA
P_t, P_o = 216 mW
C_a, C_o = 10,9 µF
L_a, L_o = 2 mH



Power Supply/KBus
only to connect to
Protos Module BASE 3400X ×/×××
or to
other Protos measuring &
ouput modules

Installation must be in accordance with Canadian Electric Code in Canada

The intrinsically safe equipment connecting to 1 to 19
KBus must be CSA approved
or be a simple apparatus (a device which will neither generate nor store more than 1.2 V, 0.1 A, 25 mW or 20 mJ).

Verteiler: FUL (2x)				Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m	Oberfläche	Maßstab	page 12
						Holzbezug	
					Datum	Name	Benennung
				Bearb.	22.09.06	dam	control drawing CSA
				Gepr.(KON)			Protos Type FIU 3400X-14×
				Freigabe(FGL)			
				Schutzvermerk nach ISO 16016 beachten			Zeichnungsnummer
							201.003-180
1	140-2	26.11.02	dam	Knick			
Nr.	AE	Datum	Bearbeiter FGL KON	Elektronische Messgeräte GmbH & Co. KG		Ungültig ab:	Ersetzt durch:

Weitergabe sowie Vervielfältigung dieser Unterlage, Verwertung und Mitteilung ihres Inhalts nicht gestattet, soweit nicht ausdrücklich zugestanden.

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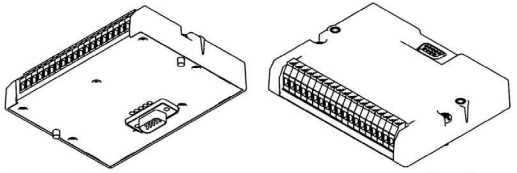
Protos modular measuring system for liquid analysis Type 3400X */***

Protos Module Type MS 3400X-16*

Hazardous Location
Class I, Division 2, Groups A, B, C & D T4
Ex ib [ia] IIC T4; Entity
Tamb = – 20 °C to + 50 °C



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Hazardous Location
Class I, DIV 1 or Zone 0, IIC

Class I, Division 1, Groups A, B, C & D
Class II, Division 1, Groups E, F & G
Class III
Class I, Zone 0, Ex ia, Group IIC

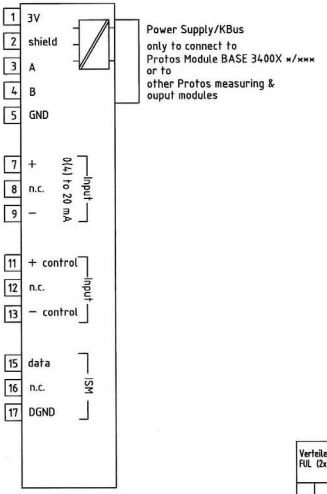
MS 3400X-160

Memosens
Terminals 1, 2, 3, 4, 5
V_t, U_o = 5 V
I_t, I_o = 127 mA
P_t, P_o = 159 mW
C_a, C_o = 96,2 µF
L_a, L_o = 2mH

I-Input
Terminals 7, 9
U_i, U_{max} = 30 V
I_i, I_{max} = 100mA
P_i = 750mW
C_i = 12 nF
L_i = negligibly small

OK-Input
Terminals 11, 13
U_i, U_{max} = 30 V
I_i, I_{max} = any
P_i = any
C_i = negligibly small
L_i = negligibly small

ISM
Terminals 15, 17
V_t, U_o = 8,3 V
I_t, I_o = 9,3mA
P_t, P_o = 20 mW
C_a, C_o = 7,2 µF
L_a, L_o = 400 mH



Power Supply/KBus
only to connect to
Protos Module BASE 3400X */***
or to
other Protos measuring &
ouput modules

Installation must be in accordance with Canadian Electric Code in Canada

The intrinsically safe equipment connecting to 1 to 17
KBus must be CSA approved
or be a simple apparatus (a device which will neither generate nor store more than
1.2 V, 0.1 A, 25 mW or 20 mJ).

Verteiler: FUL (2x)			Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 – m	Oberfläche	Maßstab: page 13
					Halbzeug
				Datum / Name	Benennung: control drawing CSA Protos Type MS 3400X-16*
			Bearb.	22.04.10 dam	
			Gepr.(KON)		
			Freigabe(FGL)	22.4.10	
			Schutzvermerk nach ISO 16016 beachten		Zeichnungsnummer: 201.003-180
Nr.	AE	Datum	Bearbeiter FGL KON	Knick Elektronische Meßgeräte GmbH & Co. KG	Ungültig ab: / Ersetzt durch:

Knick

Knick
Elektronische Messgeräte
GmbH & Co. KG
Beuckestr. 22
D-14163 Berlin

Statement of Conformity

Declaration: SensISCO (NAMUR NE 116)

Document No.	**SO120813A** **Issue No.: 1**	Page 1 of 1
The electrical apparatus	**Protos® Modules Type PH 3400X-032, PH 3400X-033**	
manufactured by	**Knick Elektronische Messgeräte GmbH & Co. KG** **Beuckestr. 22, D-14163 Berlin**	
complies with	**NAMUR-Recommendation NE 116**	
and may be marked with	**SensISCO1X** **SensISCO1X/SensISCO2**	
Description	pH-Measurement modules for the Modular Analyzing System Protos® Type 3400 X */***.	

Electrical Data

Measuring Circuit	Terminals (KL ...)	NE116 Connection Class
pH	2, 8, 12, 13, 16	1
pH / Temperature	2, 8, 12, 13, 16, 17, 18, 19	1
pH / ISFET-supply / Temp.	2, 8, 12, 13, 14, 15, 16, 17, 18, 19	2

The measuring circuits are galvanically connected and are infallibly galvanically separated from the power supply and other circuits up to a peak voltage of 60 V.

Evaluation

The measuring circuits comply with ⟨Ex⟩ category 1 G of intrinsic safety "ia" ignition protection, group IIC, and are ungrounded by galvanical isolation from other circuits. They are categorised in Connection Class 1 and Connection Class 2 in accordance with the NE SensISCO concept.
The apparatus marking shall include the code

SensISCO1X
SensISCO1X/SensISCO2

Test documents

EC-Type Examination Certificate KEMA 03ATEX2530, Issue Number: 4
SensISCO PROTOS PH 3400X 032 033.xls (June 21, 2010 rr)

Place and date of issue

Berlin, August 13, 2012

Knick Elektronische Messgeräte GmbH & Co. KG

Wolfgang Feucht
Geschäftsführer
Managing Director

Knick

Knick
Elektronische Messgeräte
GmbH & Co. KG
Beuckestr. 22
D-14163 Berlin

Statement of Conformity

Declaration: SensISCO (NAMUR NE 116)

Document No.	**SO120813C** **Issue No.: 1**	Page 1 of 1
The electrical apparatus	**Protos® Module Type PH 3400X-035**	
manufactured by	**Knick Elektronische Messgeräte GmbH & Co. KG** **Beuckestr. 22, D-14163 Berlin**	
complies with	**NAMUR-Recommendation NE 116**	
and may be marked with	**SensISCO1**	
Description	pH-Measurement module for the Modular Analyzing System Protos® Type 3400 X */***	

Electrical Data

Measuring Circuit	Terminals (KL ...)	NE116 Connection Class
pH	2, 8, 12, 15	1
pH / ISFET	2, 8, 12, 13, 14, 15	1
pH / Temperature	2, 8, 12, 15, 18, 19	1
pH / ISFET / Temp.	2, 8, 12, 13, 14, 15, 18, 19	1
pH / ISM / Temp.	2, 8, 12, 15, 16, 17, 18, 19	1
pH / ISFET / ISM / Temp.	2, 8, 12, 13, 14, 15, 16, 17, 18, 19	1

The measuring circuits are galvanically connected and are infallibly galvanically separated from the power supply and other circuits up to a peak voltage of 60 V.

Evaluation

The measuring circuits comply with ⟨Ex⟩ category 1 G of intrinsic safety "ia" ignition protection, group IIC, and are ungrounded by galvanical isolation from other circuits. They are categorised in Connection Class 1 in accordance with the NE SensISCO concept. The apparatus marking shall include the code

SensISCO1

Test documents

EC-Type Examination Certificate KEMA 03ATEX2530, Issue Number: 4
SensISCO PROTOS PH 3400X 035.xls (June 21, 2010 rr)

Place and date of issue

Berlin, August 13, 2012

Knick Elektronische Messgeräte GmbH & Co. KG

Wolfgang Feucht
Geschäftsführer
Managing Director

Knick
Knick
Elektronische Messgeräte
GmbH & Co. KG
Beuckestr. 22
D-14163 Berlin

Statement of Conformity

Declaration: SensISCO (NAMUR NE 116)

Document No.	**SO120813B**	**Issue No.: 1**	Page 1 of 1

The electrical apparatus — **Protos® Module Type PHU 3400X-110**

manufactured by — **Knick Elektronische Messgeräte GmbH & Co. KG**
Beuckestr. 22, D-14163 Berlin

complies with — **NAMUR-Recommendation NE 116**

and may be marked with — **SensISCO1**

Description

pH-Measurement and Unical® or Uniclean® communication module for the Modular Analyzing System Protos® Type 3400 X */***.

Electrical Data

Measuring Circuit	Terminals (KL ...)	NE116 Connection Class
pH	2, 8, 12	1
pH / Temperature	2, 8, 12, 13, 14, 15	1

The measuring circuits are galvanically connected and are infallibly galvanically separated from the power supply and other circuits up to a peak voltage of 60 V.

Evaluation

The measuring circuits comply with ⟨Ex⟩ category 1 G of intrinsic safety "ia" ignition protection, group IIC, and are ungrounded by galvanical isolation from other circuits. They are categorised in Connection Class 1 in accordance with the NE SensISCO concept. The apparatus marking shall include the code

SensISCO1

Test documents

EC-Type Examination Certificate KEMA 03ATEX2530, Issue Number: 4
SensISCO PROTOS PHU 3400X 110.xls (June 21, 2010 rr)

Place and date of issue

Berlin, August 13, 2012

Knick Elektronische Messgeräte GmbH & Co. KG

Wolfgang Feucht
Geschäftsführer
Managing Director

DE

2017 Änderungen vorbehalten
Version: 1.1
Dieses Dokument wurde zuletzt aktualisiert am 11.12.2017

Aktuelle Dokumente finden Sie zum Herunterladen auf der Webseite unter dem entsprechenden Produkt.

EN

2017 Subject to change
Version: 1.1
This document was last updated on December 11, 2017

The latest documents are available for download on our website under the corresponding product description.

20171211

TE-201.011-KNX10

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